

in a tool-bag or in one's pocket. While pumping, the operator has both hands free, for the machine forms the necessary support to the pump.

Brief Notes Concerning Patents.

President Louis W. Hill, of the Eastern Minnesota Railroad, son of James J. Hill, has turned his attention to the mechanical side of railroading, and associated with Max E. R. Toltz, a mechanical engineer of the Great Northern system, and has taken out a patent on a combined freight and oil car. It is said that the Standard Oil Company has agreed to use the cars of the new type.

We have coin-controlled machines for selling chewing gum, cigars, lead pencils, and candy; machines which require but the dropping in the slot of a nickel to enable one to listen to the latest "coon" songs; and machines that embody in their construction a city directory which can be opened by the dropping of a cent in the ever-present slot. In a word, the name of the "coin-controlled" machine is legion. The latest addition to the list is a coin-controlled newspaper-vending machine, which is the invention of Albert D. Smith, of St. Louis, Mo.

Lord Kelvin is busily engaged in compiling the specifications of two new patents. The completion and patenting of these devices will bring the number of patents controlled by the Kelvin syndicate to forty-nine, a large number of which deal with appliances which are now regarded as indispensable to the equipment of ships in every country of the world. The success with which the veteran physicist has exploited the commercial side of his inventions is shown by the circumstance that upon the latest warship added to the Japanese navy there are no less than fourteen Kelvin appliances.

A new method of treating copper ore has been devised by William J. Knox, of Edgewood Park, Pa. In the oxidation of an iron-bearing copper matte in a molten state, in a basic-lined vessel, little or no silica being present, Mr. Knox has found that there is formed a highly fusible compound of iron and sulfur—an oxysulfid of iron. Air is forced into the matte, thereby generating heat sufficient to maintain the mass in a molten state and causing the formation of iron oxysulfid under such conditions that substantially no silicate of iron is formed. The copper is separated by precipitation. The process, it will be observed, is somewhat similar to that of making Bessemer steel.

Prof. Charles Whitney Carmen, who has been connected with a number of Western educational institutions, is the inventor of a new electrical apparatus for the projection of pictures impressed on an opaque substance, onto a screen to be viewed by a number of persons simultaneously. This dispenses with the necessity of the special preparation of the lantern slide, as pictures of all kinds, and objects themselves, coming within the required dimensions, can be placed in the machine and shown in enlarged form on the sheet. This machine was recently shown before the members of the Chicago Electrical Association for the first time, and its work was regarded as entirely satisfactory.

Among the new designs in safes, there is one built especially for use in the offices of street railway companies. The usual method followed in receiving conductors' receipts is to have them turned over to a cashier, which necessitates the employment of two men, so that one will always be on duty, but with the use of the safe the services of one of these men is done away with. The safe is always open for the receipt of the conductor's bags, but at the same time its contents are protected from thieves. The safe has an opening on the top which is covered with a shield on a hinge and supplied with a handle for the purpose of raising it. As this is done a tray presents itself through the hole rising to a point just flush with the top of the safe. The conductors' returns are placed on this tray and the handle turned down with which the money passes through the hole into the interior of the safe.

A snow plow of extremely novel design has been at work during the past winter on the Delaware, Lackawanna & Western Railroad. It is supplied with a turntable device which permits its operation to be entirely independent of the regular railroad turntables. This is an advantage of no little importance, for it is often desired to limit the operation of a snow plow to one particular stretch of country, whereas with the old style of plow much time would be consumed in making the many necessary trips to the turntable, which may be many miles away. A turntable device is attached to the front of this plow, and when it is desired to head around and make the return trip the front of the plow is raised by means of compressed air cylinders, and then the truck is run back to the center of the car where there is a bolster with a center bearing to fit the truck and a number of wheels arranged in a circle to bear on the turntable track. The whole car is then balanced on this truck and is readily pushed around by the crew.

Legal Notes.

POTENTIAL DISCHARGER INFRINGEMENT.—On October 21, 1890, Anthony C. White obtained a patent for a potential discharger, which was later acquired by the Western Electric Company. The device patented consisted of an upper conducting-plate of carbon, electrically connected with the line to be protected, and provided with a perforation in its lower surface filled with a plug of some easily fusible alloy; a lower conducting plate of carbon electrically connected with the earth by wire; and a thin, dielectric, mica partition slotted in the middle opposite the fusible block and securely fastened between and in contact with the plate. The purpose of this combination is to protect telephone apparatus used in connection with electric currents and liable to be injured by high potential currents which occasionally intrude upon telephone and telegraph wires. The Kinloch Telephone Company made a device consisting of two plates of the same character electrically connected and used in the same way as the conducting plates of White—a silk dielectric partition between them; and two leaden poles or shot secured by wax, one in a perforation in the inner surface of the upper plate, and the other in a hole in the inner surface of the lower plate. The company was sued by the Western Electric Company for infringement. The primary court found that there was infringement. On appeal the Kinloch Company claimed that they did not use "easily fusible material," but leaden poles or shot which cannot be readily fused; and that, when attention is given to the parts which really do the work, the Kinloch device does not perform its function in the same way as the White device. The wax of the fusible material is not essential to the operation of the combination, but is a mere means of holding the parts of the device together; while the fusible material of White's is indispensable. The court found that a patentee who has made a definite claim has thereby disclaimed and abandoned to the public all other combinations and improvements that are not mere imitations of his own inventions; but that when he secures a patent for a new combination, he thereby necessarily claims and secures a patent for every mechanical equivalent of that combination, because in the light of the patent law, every mechanical equivalent of the device is the same thing as the device itself. It was here held that the wax or other fusible material which is held in perforations in the faces of the conducting plates until released by the heat of an arc between them, so that they are caused to run down between the plates and form a conducting link, are mechanical equivalents of White's fusible mass or plug, when they are used in a potential discharger for the same purpose and when they perform the same function.

COMBINATIONS OF OLD ELEMENTS.—The Western Electric Company has won still another action against the Kinloch Telephone Company; this time for the infringement of letters patent granted to John A. Seeley for an improvement in grouping steering-jacks and annunciators for multiple switchboards. Seeley's improvement relates entirely to the placing and grouping of switches or jacks and annunciators in a multiple switchboard system. When Seeley made his invention the annunciator commonly used was a shutter hinged at its lower edge, which shutter dropped and disclosed the subscriber's number when he took his telephone-receiver from its hook. Seeley's switchboard was divided into sections, each of which contained all the line-jacks of all the subscribers served by the entire board of annunciators, and steering-jacks of about two hundred of the subscribers. Before the Seeley invention, the line-jacks on a multiple switchboard performed the function of his steering-jacks. The essence of his invention was the convenient and uniform grouping of the annunciators and their corresponding steering-jacks relatively to each other. His invention was directed to the improvement of the service on a multiple switchboard to enable one operator to render more speedily and efficiently all the service required by the subscribers entrusted to her care. The combination was useful. It was immediately widely applied. While this fact is insufficient in itself to sustain a patent where the machine or combination is clearly without novelty, yet where the question of novelty is fairly open under the law, the fact that a patented device and combination has displaced others which had previously been used to perform its function, and has gone into immediate and general use, is persuasive evidence that it involved invention.

The defendants, instead of placing all the line-jacks of all their subscribers on the same multiple switchboard, divided their subscribers into four equal parts or divisions, called divisions A, B, C and D. All the annunciators and all the steering-jacks of all the lines of the Kinloch Company are distributed in

corresponding groups upon the sections of each of the four boards, so that each group of annunciators and its corresponding group of steering jacks occupy the same uniform relative position to one another on each section of each of the boards. The court said that this uniform grouping is the principle of Seeley's invention. The essence of Seeley's invention is the uniform correspondence and relative position of all and not of a part of the members of groups of annunciators and steering-jacks, so that, given a place in a group of steering-jacks corresponding with an annunciator in one group of annunciators, every steering-jack corresponding with an annunciator in the same place in the other groups, will be found in the same relative position in every corresponding group of steering-jacks. This uniform correspondence in the relative positions of the groups and the members of which they are composed, the defendants preserved.

OMISSION OF AN ELEMENT IN COMBINATION.—A most unusual situation was presented in the case of the American School Furniture Company vs. J. N. Sauder Company (113 Fed. Rep. 576) for the consideration of the Circuit Court of the Eastern District of New York. Although the complainants charged the infringement of a patent, the defendants admitted that the patent was for a useful invention and that it had not been anticipated, contrary to the customary practice in patent litigation. The only issue was infringement; and even upon this point the defendants took no testimony, relying wholly upon the alleged weakness of the plaintiff's case. The Court found on examination of the evidence that the defendant's course was justified and that the charge of infringement was not made out.

The patent in the suit, in the opinion of the court, is in no sense a primary patent. It covers improvements in adjustable school desks and seats, and consists, says Judge McPherson, in the combination of old elements. The defendants omitted one of the elements of a combination forming the subject of certain claims, and had substituted no equivalent. It has been held time and time again that nothing in the law of patents is more firmly settled than the rule that a claim for a combination is not infringed if any one of the described or specified elements be omitted without the substitution of anything equivalent thereto. In the present case the Court followed this well-established rule and dismissed the complainant's bill.

UNFAIR COMPETITION.—The liability of corporations for torts in pursuance of an alleged conspiracy to ruin the business of a competitor was the subject discussed in an unfair business competition case (West Virginia Transportation Company vs. Standard Oil Company, 40 S. E. Reporter, 591) in which an opinion was recently handed down by the West Virginia Court of Appeals. It was held that one may, without liability, in furtherance of his own interest in the competition of business, establish any business in competition with another and may induce customers of that other to withdraw their patronage in order to obtain the business for himself, although it injure, and is intended to injure, the other person's business, provided there is no contract between such other person and the customers. The motive of the person so doing, though malicious, is not material, if his acts are lawful. The court cites the case of the farmer who dug a hole, cutting off underground water which used to percolate and ooze through lands of a neighbor. It was held that the farmer was not liable, though he did the act with malice, for he had the right to use his land as he pleased.

WESTINGHOUSE AIR-BRAKE IN COURT.—The Boyden patent, 481,134, owned by the Westinghouse Air Brake Company, has again come up for consideration in a United States Court. The patent in question formed the subject of a most hotly contested litigation decided before the Supreme Court, by whom a most careful examination of the state of the art was made at the time. The patent, therefore, did not come up again in the present case (Westinghouse Air Brake Company vs. Christensen Engineering Company, 113 Fed. Rep. 594) with such presumption of validity only as arises from its issue by the Patent Office. The decision of the Supreme Court in the previous case, expressed with no uncertain sound, was, therefore, accepted by Judge Lacombe as establishing the position, that Boyden was an independent and meritorious inventor, who solved with great ingenuity and in the simplest manner the problem of providing a quick-acting air-brake valve. The plaintiffs' motion for preliminary injunction was sustained.

The Pressed Steel Car Company has secured a Court order compelling its former chief engineer, John Hansen, to assign certain inventions and patents to them. The company claims that he was paid \$10,000 a year and had contracted to make over all improvements to them. The patents claimed by the company were secured in 1901.