

until its work is accomplished, and with a practicable line of retreat entirely independent of the ship.

"This project, in more detail and accompanied by maps, will be placed before your council, in the belief that it will meet the approval and indorsement of the society. With that indorsement, I believe the time is opportune for raising the money for the work."

A THEATER WITH TWO AUDITORIUMS.

The people of New York City have the reputation of being the most industrious theater-goers in all America; a statement which is verified by the ever-increasing number of large and well filled places of amusement. Of late years the growth of the popularity of the style of entertainments which are classed under the name of vaudeville has called into existence a special type of theater, which, in addition to the regulation stage and auditorium, includes special halls of entertainment, with lounging rooms, cafés, etc., and, for use in the hot summer months, the inevitable roof garden. To judge from the nightly programme of a first class house of this type, the excellence of the performance is measured, after its quality, by its length and variety. The more rapidly the various artists can make "their exits and their entrances," the more concentrated amusement can be packed into any given hour of a "continuous performance."

It was with a view to enlarging the stage capacity that the proprietor of Proctor's Pleasure Palace, in New York City, resorted to the bold expedient which is shown in the accompanying illustration, from which it will be seen that a single stage is made to do duty for two separate auditoriums. The way in which this was accomplished will be seen by reference to the sectional diagram, which is taken longitudinally through the auditorium proper, the stage, and the new auditorium, which is known as the Palm Garden, being so named after the palms and tropical plants and vines with which it is decorated. That part of the diagram which includes the auditorium and the stage shows the construction of a typical theater of to-day—the roof garden and the café in the basement being special features in a house of this kind that introduce no new structural features of much consequence beyond a strengthening of the roof supports. Stripped of its galleries and scenery, a theater consists of two four-walled structures, the auditorium being about square in plan, and the stage floor about the same width as the auditorium and half the depth. The walls of the stage are carried considerably higher than the roof of the auditorium, in order to accommodate the "drop curtains," which are hung by ropes that pass over pulleys attached to what is known as the "gridiron," a stout framework located near the roof of the "scene loft." When the "drop curtains" are not in use they are raised clear of the "proscenium," as the opening from the stage to the audience is called, and hang in parallel rows as shown in the diagram. Below the stage floor are shown the "traps," which are used for the disappearance of Mephisto and people of similar subterranean proclivity. Here, in the older theaters, were frequently located the dressing rooms of the performers, though the more modern arrangement is to build them at the sides or to the rear of the stage.

In carrying out the idea of a double stage a hall was built immediately behind the theater proper, and a proscenium arch was cut through the rear wall of the stage, the floor of which was carried out into the hall and provided with the regulation footlights. The new proscenium was provided with its own curtain, and all that was then necessary was to paint the backs of the existing wings and drop curtains with scenery, and the doubling of the stage was complete.

The original intention was to have three or four performances of such a character that they would not interfere with each other going on upon the stage at the same time, and during the summer months this was frequently done. Ordinarily, however, the curtain opening to the palm garden is kept lowered, and it is raised only during the intermissions, or when special acrobatic, gymnastic or animal acts are in progress. A passageway leads from the auditorium to the palm garden, which are both accessible to the audience at all times.

This is the first time that such an experiment as this has been tried, and its results will be watched with considerable interest. The effect as one looks through the stage may be judged from the larger of our engravings.

ON March 31, 1896, eighty-three men-of-war were building at English ship yards, having an aggregate tonnage of 312,375 tons. Sixty-four of these were for the British navy. Fifteen ships were under construction in the government yards, and at the private yards forty-nine vessels were building for the British navy, including thirty torpedo boat destroyers of a speed of 30 knots. The navy budget of the current year provides for the construction of sixty torpedo boat destroyers of a speed of from 30 to 33 knots, at a cost of \$300,000 each. There are to be built besides four battleships, four first-class cruisers, six third-class cruisers, or seventy-four ships in all.—Stahl und Eisen.

Recent Patent and Trademark Decisions.

Tuttle v. Claffin (U. S. C. C. A., 2d Cir.), 76 Fed., 227.
Plaiting Machine.—The Crosby & Kellogg patent, No. 37,033, for a machine for crimping textile materials, has been held valid and construed.

Accounting for Profits in Infringement.—Where an infringer makes no addition to the patented machine, but merely uses mechanical equivalents which may produce better work than the corresponding devices for which they were substituted, he is bound to account for the profits he has reaped, and they will be measured by the difference in the expense of doing the work by the device and by the method used prior to the patent. But if an infringer takes the whole of the vital and effective parts of an invention and superadds an improvement which contributes to the saving over the old methods, then the infringer is liable for the difference in expense of doing the work by the device and by the method used prior to the patent, after deducting the portion of the profits that accrued from the improvement added by the infringer; the amount of the profits accruing from the improvement must be established by the infringer. Where the infringer used the essential parts of the patented machine without which his infringing machine was worthless, it is not necessary to demand an accounting of profits that the equivalents substituted by the infringer improved the work of the corresponding elements of the infringing machine.

Marking the Article "Patented."—Where the pleadings are silent on the question of whether the complainant marked its article as patented or notified defendants of their infringement and the question was never actually raised or decided in the court below, the point cannot be raised upon appeal from the final decree.

Ascertainment of Profits by the Court of Appeals.—Where a suit for infringement had been pending for eighteen years and had been before three masters for an accounting and finally resulted in a decree for nominal damages only, the Court of Appeals, upon deciding that the complainants were entitled to recover a substantial sum, did not remand the case to the court below for further proceedings, but did itself determine the proper amount and render a decree therefor.

Ex parte Fratsch (Comr.'s Dec.), 77 O. G., 1427.

Use of Copper Matte to Purify Oil.—The use of pulverized matte to remove the "skunk" from oils is an improvement upon the use of a mixture of pulverized copper oxide and pulverized iron oxide such as would not be expected from those versed in the art, and therefore amounted to invention.

Couch v. Finnigan (Comr.'s Dec.), 77 O. G., 1595.

Acquiescence by Conduct.—In this case one of the parties, after learning of the other's patent, continued to make the patented article and did not object to the other marking his article patented, and even did not claim the article as his own invention until after his employers became involved in trouble with the other parties. It was held that this conduct was not that of a person who had actually made the invention.

Failure to Claim the Invention in a Prior Patent.—Where a party obtained a patent which disclosed all the improvements embraced in an interference contest before he filed his interference application, but his prior patent contained no claim for the matter in contest, this would indicate that he would not consider himself the inventor of such matter.

Bryant v. Seymour (U. S. C. C. A., D. C.), 77 O. G., 1599.

Delay in Appealing.—The rules of the Circuit Court of the District of Columbia provide that an appeal shall be taken within forty days of the Commissioner's decision and not afterward. In this case the appeal was taken nearly a year afterward, without any excuse for the delay being given. The court decided to adhere to the rules, and the appeal was dismissed.

Hien v. Pungs (U. S. C. C. A., D. C.), 77 O. G., 1600.

Time for Appeal to the Court of Appeals of the District of Columbia.—There is no justification for the theory that a party has two years in which to take an appeal from the Commissioner of Patents to the Court of Appeals of the District of Columbia on the ground that the statute gives an applicant a possible two years within which to prosecute his application. The right of appeal is not a vested right that may be altered by statute or by rules of court. If there was no rule in force at the time the Commissioner's decision was made, it applied to the case as soon as the rule was promulgated.

Pelton v. Evered (U. S. C. C. A., D. C.), 77 O. G., 1600.

Failure to Print Record.—An appeal from the Commissioner of Patents to the Court of Appeals of the District of Columbia will be dismissed, if the parties failed to print the transcript of record as provided for by the rules of the court.

Mackintosh Battery and Optical Company v. Bertman (U. S. C. C. A., 7th Cir.), 76 Fed., 368.

Electrical Machines.—The Atkinson patents, No. 275,347 and No. 331,754, for improvements in machines for generating static electricity, are void for want of invention.

Notes on Acetylene.

The following notes on acetylene are extracted from recent technical journals:

Mr. P. C. Frewin, F.C.S., U. S. A., says: "I filled an iron ball with acetylene to a pressure of five pounds to the square inch, and then subjected it to a series of blows from a large sledge hammer. Although the ball was bent all shapes, there was no explosion, neither has there ever been to my knowledge through this cause. Acetylene has a chemical action on pure copper, but none of a dangerous kind on brass. A series of experiments have been conducted by me before the Chemical Society of New York, and they all go to prove this. Several insurance companies in England are at present willing to insure houses, etc., lighted by acetylene, and, no doubt, in a short time, all will do so. I may add there were last year 730 people using acetylene as a general illuminant in New York, and that only three accidents occurred—two through escapes and one through a generator being charged with a candle close by—conditions under which coal gas would have acted just the same."

M. Brevans says that if ordinary acetylene from carbide be passed through a series of three washing flasks containing a solution of sulphate of copper, there is no effect perceptible within three hours; but after twelve hours the first flask contains a black-brown, brilliant precipitate, the quantity of which goes on increasing for as much as eight days, says the Gas World. This precipitate explodes on shock, friction, or heating, and it appears to be a mixture of phosphide and silicide of copper, of sulphate of cupro-acetylene, and a variable quantity of acetylide of copper. Its production appears to depend largely on the presence of ammonia in the crude acetylene gas; and it shows that the crude acetylene contains phosphureted hydrogen and silicureted hydrogen. The second flask contains a precipitate which is similar in appearance, but less explosive; and the precipitate in the third flask is not explosive. The explosive precipitate in the first flask will explode even under water, as, for example, when we try to rub it off the glass with a glass rod. As to the explosibility of acetylene there are two opinions: one that there may be metallic acetylides formed, which act as detonators to the acetylene itself, so that acetylene cannot be used with reservoirs which are capable of being attacked by it; the other that it can only be exploded when mixed with air, and that the influence of the outside explosions which can set it off cannot travel far through air. In any case, acetylene at a pressure not much exceeding that of the atmosphere is not explosive, though it is explosive at pressures above two atmospheres; so that there is no reason to fear an explosion through flame running back to a reservoir under a very small excess of pressure. Shock alone does not appear to cause explosion of the gas, only of the acetylides. The alleged poisonousness of acetylene—which has not, as yet, given rise to any accident—would appear to be due to the occasional presence of cyanogen compounds, and is not a feature of pure acetylene. The presence of sulphureted hydrogen in acetylene seems to depend on that of sulphide of aluminum in the carbide of calcium; sulphide of calcium may exist in it without forming this impurity. The blocking of gas jets by acetylene flames seems to be due to the formation of phosphoric acid. If oxygen be not present, acetylene does not attack copper; the oxide must be formed before the acetylide can be produced.

M. N. Grehant's experiments at the General Physiological Laboratory of the Paris Natural History Museum have shown that one volume of acetylene consumes during combustion two and a half volumes of oxygen, and yields two volumes of carbonic acid, thus favoring the belief that the combustion of this gas is complete, no combustible mixture containing carbon being generated. In order, however, to ascertain whether the products of combustion contain a trace of combustible gas, he tested them in a continuous grisometer, with platinum spiral kept incandescent by galvanic accumulators, and only obtained, during two hours, from 79 cubic inches in a baryta tube, a ring, scarcely visible, of baryta carbonate, showing so slight a trace of carbonic acid that it could not be determined. In another experiment an India rubber bag filled with acetylene gas, subjected to a pressure of 1½ inches of water, supplied a Manchester burner placed underneath a metal cone, connected by a refrigerator with two metal valves, and a muzzled dog breathed the products of combustion for half an hour. In the grisometer, 2½ inches of normal arterial blood showed a reduction equal to 3.7 divisions, while the same quantity taken at the end of the experiment showed a reduction of 3.8 divisions. M. Grehant concludes that the products of combustion given off by acetylene, when a Manchester burner is used, are free from the slightest trace of combustible gas containing carbon.

THE Duryea Motor Wagon Company, of Springfield, Mass., have received from the Motor Car Club, of London, a gold medal in recognition of their splendid performance in the London-Brighton run on November 14, 1896.