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THE SCIENTIFIC AMERICAN SUPPLEMENT

No. 350,

For the Week ending September 16, 1882.

Price 10 cents. For sale by all newsdealers.

ONE HAS-DONE-IT BETTER THAN THREE CAN'T-DO-ITS.

In a recent infringement trial in this city, in the U. S. Circuit Court, Judge Blatchford presiding—subject, the manufacture of rosaline colors, Patent 250,247, the defendants claimed that they were not infringing, and that the alleged coloring matter could not be produced by the process set forth in the patent.

In support of this position they presented the evidence of three learned doctors, namely: Prof. Morton, to the effect that the patented color was not made by following the directions of the patent. Professor Chandler was also of the opinion that the new color was not produced in the way directed by the patent. Prof. Eudesmann also said he had found that the improved article could not be made by following the specification. But neither of the doctors informed the court what sort of stuff they could make by practicing the new invention; and they furthermore admitted, tacitly, that the article made by the defendants did not differ from the article claimed by patentee.

On behalf of the inventor, Prof. Seeley produced as an exhibit a specimen of the new color, which he had made by following the process set forth in the patent; he also testified that the infringing substance was identical with the patented article.

It also appeared in evidence that when the inventor applied for the patent, there had been some interference proceedings, in the course of which Professors Morton and Chandler testified at that time that they had not been able to produce the patented article, although they had followed the directions of the patent. Therefore, the Patent Office required the inventor to make an actual demonstration of the practicability of his invention, which he did.

In the presence of the examiner, he carried out practically the method described in his specification, and the result was, the production of a true rosaline salt, as claimed. The Commissioner consequently disregarded the evidence put in by the two professors, and decided the case in favor of the inventor. The Circuit Court now confirms the correctness of the Patent Office decision, and we suppose that the defendants' three professors are at liberty to try the process again.

MICA.

One of the chief uses of mica at the present time is for stove doors and lanterns, the fire-resisting qualities of the mineral, together with its transparency, rendering it specially adapted for the purpose. But only the very clearest and best sheets of mica can be thus used. Vast beds of the substance exist in various parts of the country, for which, except the finest portions, as above mentioned, there is little demand. New uses will, however, doubtless be discovered and invented, for mica is made up of valuable materials. We notice among the recently granted patents two inventions in this line. One is for the manufacture of journal boxes of cement, ground mica, and flour; the ingredients are mixed, pressed into shape, and then baked. The other is an apparatus for reducing mica to an impalpable powder and preparing it for use as a mixer in starch gloss and oily compositions.

Chemically regarded mica is made of silica, alumina, and potash. Silica is one of the hardest substances in nature, known in its purest and most beautiful form as rock crystal.

Alumina is another exceedingly hard substance. One of its most useful but impure forms is emery or corundum, now so extensively employed for grinding and polishing purposes. The most elegant and purest examples of silica are seen in the well known precious stones, the ruby and the sapphire.

Potash, the remaining ingredient of mica, is familiar to everybody, and is extensively used in the arts. Our commercial supplies of potash chiefly come from the ashes of plants and trees, and their roots take it from the ground, the granite rocks being the original source. Granite is composed of quartz, feldspar, and mica.

GENERAL INCANDESCENT ELECTRIC LIGHTING IN NEW YORK.

While the lighting of detached buildings by incandescent electric lamps is a familiar sight in this city, the inauguration of a general system of incandescent electric lighting, from a central station, may fairly be regarded as marking the beginning of a new epoch in social economy.

To those who had critically followed the development of the multiple arc system of Mr. Edison there was no apparent cause for doubting its entire practicability when applied to general public lighting. Still to the multitude the final demonstration of actual service throughout a considerable area, under the complex conditions encountered in a city district, covering many streets and blocks of houses, was necessary to give assurance that the whole matter was not more or less speculative.

The great steam dynamos at the central station of the first district were started in concert on the afternoon of Monday, Sept. 4, and from that evening the new system of interior lighting has been one of the established institutions of the city. To a large extent gas light has been supplanted throughout the district, and there is no reason for doubting the extension of the new light to other districts as rapidly as the requisite central stations and systems of electric conductors, lamps, meters, and other appliances, can be produced

At any rate the new system has passed three of the four essential stages of progress toward commercial permanence and success.

When Mr. Edison first attacked the problem of incandescent electric lighting he was met with the general objection of electrical authorities that a durable incandescent electric lamp could not be made. When he proposed to subdivide the electric current, so as to multiply small lamps economically, he was warned on all sides that he was in pursuit of an impossibility; the thing could not be done. Having produced the desired lamp and subdivided the current experimentally, his critics not less confidently asserted that a laboratory experiment was one thing, the practical application of a theory to a complex system of public service was quite another, and he was bound to fail. It was a question of economy, and admitting that an incandescent electric lighting system could be furnished under the conditions required it would not pay. On this point the company which have furnished the means for the inauguration of the system in the district now lighted by them are probably better qualified to judge than the opponents of the system. It is certainly to be hoped that their expectation of profit in supplying a better light than gas affords, at the same or less cost, will be amply justified.

As the plan of the central station and the general application of the system in the first district have been so recently described in this paper (August 26, 1882), it will not be necessary to dwell upon them here.

Assuming the new light to cost the same as gaslight—and it is not reasonable to expect that those who have assumed the cost and risk attending the development and introduction of the new light will set the price of it below what competition with gas may make necessary—the question is, How are the public to be benefited?

The first and most obvious advantage arises from the quality of the light. It is more nearly like sunlight than any other artificial illuminant. It is free from flickering and unsteadiness—faults which make both the electric arc light and the ordinary gas jet so painful and injurious to the eyes. It does not vitiate the air as gas does, by consuming oxygen and loading the air with products of combustion. Its heating effect is very much less than that of a gas jet of the same illuminating power. It is not a source of peril from fire, the lamp proper being incapable of firing the most combustible fabric; while the low tension of the current makes the formation of arcs and the overheating of conductors altogether unlikely.

Fears as to the continuity of the service have been expressed, but the grounds for them are not apparent after an examination of the plant of the central station. It is true that no system of storage is provided, as in the case of gas. None is needed, since the electricity is supplied by a battery of steam dynamos which deliver their several currents into a circuit common to all, with a large surplus available, so that the stoppage of any of them by accident or for repairs would not diminish the illumination of the district. Of course a general fire about the central station might stop its operation and leave the district in darkness, but the same risk obtains with gas; and after the establishment of two or more centers of distribution this hazard may be obviated by means of connecting mains to be used in such emergencies.

The experience obtained in the running of Station No. 1 will no doubt lead to the introduction of considerable changes in the plan and engineering of subsequent stations; the company are none the less to be congratulated for the wisdom with which they have brought into successful operation an enterprise involving so much of magnitude, complexity, and novelty.

The Pretsch Process for Making Photo Printing Plates.

A sensitive gelatinous mixture is prepared by dissolving 6 parts of gelatine in 30 parts of water, and 1 part of powdered ammonium bichromate is stirred into the solution. A piece of plate glass, which is all the better for having been previously coated with a collotypic substratum, is now leveled in the drying cupboard—a temperature of about 40° C. being suitable in most cases. When the plate has reached the full temperature of the hot cupboard, some of the gelatine preparation is poured on and spread with a strip of paper, about 30 grains being allowed for each square inch of surface. When the plate is dry it is exposed under a negative, about six times the exposure which would be required for a silver print being given. When the exposed plate is soaked in water, the reticulation and granulation of the gelatine rapidly set in, and in a few minutes an exact reverse of the required printing block will result. The next step is to allow the plate to become partially dry, and to deposit copper on it by the electrotype process so as to form the printing block. It is, perhaps, a more certain proceeding to take an impression from the reticulated film by means of softened gutta-percha, and to send this cast to an electrotyper or a stereotyper to be reproduced in metal.

Silk Direct from the Worms.

An unsuccessful attempt was made lately before the New York Silk Exchange to reel silk direct from the worms. The idea is a taking one, and if realized it might prove immensely valuable. Success might open a way to utilize the silk of many native worms whose cocoons cannot be unwound.