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**For the Week Ending September 5, 1896.**

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### PATENT MEDICINES.

The experience of every patent solicitor includes the preparation of applications for letters patent on mixtures designed to be used in medicine. The pharmacist, in his mercantile relations with the community, finds that a very large portion of his business consists in selling a quantity of well known ready-made mixtures, all of which by him are grouped under the term "patent medicines." These include the vast number of proprietary remedies for the cure of the ills which flesh is heir to, which remedies are of secret composition generally, and are frowned upon by the regular medical practitioners. Any one who for a moment considers the meaning of the term patent will see at once that it is grossly misapplied in the case of anything secret. A thing patented is a thing divulged. The medical profession very properly may raise objections to sundry secret medicines, as opposed to the ethics of their calling, but a medicine patented has its composition disclosed. Any one, for a nominal sum, can procure from Washington a specification describing its composition.

It would seem that it is not a departure from ethics for a physician to patent any medicine whose composition may involve the exercise on his part of invention.

Every physician has his own favorite prescriptions, and it would seem that the ground thus taken would expose the community to the abuse of being flooded with innumerable patents for medicines, and that prescription after prescription would become the property of some specific doctor.

But it so happens that the patent law, which may be treated from some aspects of the case as an embodiment of ethics, with numerous decisions of the highest courts of the land to elucidate its doctrines, steps in here and makes the patenting of a medicine exceedingly difficult. The history of these applications in the Patent Office is in most cases a rejection on formulated grounds. The application generally describes a mixture of well known medicines. In official letters from the Patent Office examiner in these cases apt descriptions and characterizations of these mixtures are to be found. The examiner will term the subject of the application perhaps "an inventory of items assembled regardless of synergistic effects or chemical union." The mixture may be stated to be "merely numerically novel," and as involving only the skill and ingenuity of a pharmacist or physician. The medicine, it will be stated, can be made by any one possessing the skill of the calling of a pharmacist or physician, and, therefore, is not the creative work of the inventor. The examiner will require the application to show, in brief, some new and distinctive product having new properties resulting from the compounding. This is rarely shown, and the application is rejected.

So much in line with each other do the numerous applications for patent medicines fall, that the Patent Office has adopted a fixed practice, that of rejecting all applications for medical compounds which can be regarded as in the nature of physicians' prescriptions, and as descriptive of mere assemblages of well known ingredients which have well known effects on the human system. The Patent Office has even gone so far as to use a practically stereotyped form of rejection of those compounds, emphasizing the fact that the proper subject matter of a patent, whatever it is for, must be able to endure the relative tests of the presence of invention as well as of novelty and utility. The majority of these cases are disposed of unfavorably for want of invention and for being mere aggregations of known things, not showing the required statutory elements. There is therefore no mystery attending the treatment of these cases. It will be seen that they fall exactly into line with applications for mechanical devices. In them, as in mechanical devices, one great proof of invention is the presence of a true combination of parts as distinguished from an aggregation. A distinctly new result must be shown. In a case of mechanics it is obvious that the showing a new result is far simpler than in the case of a medicine. The results of a medicine have to be demonstrated on so complicated an organism as the human frame, and the subjective element preponderates in the trial. In other words, the result produced depends largely upon the subject upon whom it is tried. It is therefore very difficult to prove the presence of invention by results. Even in mechanical cases this is often not the easiest thing to do, but when the human system becomes the subject, it is a hundredfold more so.

There is, however, an indirect species of protection open to the devisor of a prescription or a formula which is unpatentable. This protection is afforded by the trade mark laws. Under the provisions of this law he may register a trade mark in connection with his compound and thereby obtain standing in the United States courts for protection for the use of such title, prima facie evidence of which will be afforded by his letters of registration. Some trade marks are enormously valuable, the business energy of their proprietors having made a simple name worth many thousands of dollars. The right of protection in the use of a trade mark rests in the common law, but the registration of it by a competent patent solicitor of course immensely increases its value.

It is here that another frequent error is made. Many applicants imagine that a trade mark in some mysterious manner protects them in the use of a compound or preparation. This it does not do. It protects them in the use of the name or trade mark designation, and it is only indirectly that it can protect them in the thing bearing its trade mark, imitation of which might be shown to indicate a desire on the part of the competitor to copy the appearance of the article and hence to trench upon the trade mark.

The United States Patent Office is ready to grant letters patent for medicines which fulfill the statutory requirements. But in foreign countries this protection is often refused, the statutes forbidding the granting of patents for such compounds.

It seems clear that it may be considered an open question in professional ethics whether a physician should patent a remedy, assuming that he has one which is patentable. Synthetic medicines, prepared by chemical processes, often coal tar products, are now invading the field of Nature's simples, and it is possible that there may yet be a number of patentable medical compounds invented, to replace quinine and other vegetable alkaloids and extracts. But now, of all the so-called patent medicines, very few are really patented at all, and they are supposed to be, and often are, of unknown and secret composition. Protection by patenting, which involves disclosure of their composition, is the last thing their proprietors would think of. It is such secrecy that is opposed to every fundamental principle of medical ethics.

### PROCEEDINGS OF THE AMERICAN ASSOCIATION AT BUFFALO, N. Y.

For the fourth time the city of Buffalo has opened her hospitable doors to receive the American Association for the Advancement of Science, and has given a hearty welcome to the hundreds of men and women who assemble to enjoy an interchange of the varied fruits of scientific research. The general session of the American Association for the Advancement of Science was opened on Monday, August 24, with prayer by Bishop Fowler of the Methodist Episcopal Church, followed by an address of welcome from General Jewett, the Mayor of Buffalo, and from Dr. Roswell Park, the president of the Buffalo Society of Natural Sciences. Attention was called to the fact that Buffalo was a great commercial center, more tonnage entering and leaving its harbor than any other in the world, with the exception of Liverpool. The institutions of this metropolis by the lakes were described, particularly the society represented by Dr. Park, and which is really doing an important work that reaches many thousands of people. This has been a famous year for conventions, especially of a political sort, a fact that caused the city aid to be denied that might otherwise have been expected. But public-spirited citizens amply atoned for this by their liberality. Prof. E. D. Cope, the renowned paleontologist and comparative anatomist, and who has the honor this year of being the President of the American Association for the Advancement of Science, responded to the addresses of welcome and gave an outline of the objects of the Association. He said that while many of the scientists assembled were teachers, the prime object of the organization was not teaching, but the advancement of science by the increase of knowledge; to penetrate the unknown; to understand with certainty the mutual relations of the various parts of the universe; and to ascertain the highest principles of nature. Some of us are attracted by a certain love of the beautiful, whether it be the beauty of perfect mechanism, of form, or of law in operation; others have an interest in the origin and destiny of the human race; others are adventurous explorers, while many others simply desire to know. Science has a high utilitarian value, and it also promotes human happiness. The man of science pursues the truth wherever it may lead, and often gains unexpected benefits. Scientific methods require a reasonable use of the results of observation and experiment. Thus correct habits of thought are formed; we study facts first, and then draw our inferences. Theories should not be valued for any more than they are worth. Labor brings its substantial reward, but there is a pleasure in activity itself. Scientific men teach that the mental life is worth living and gives as much pleasure as the physical life. They demand free thought, as well as thought that is careful and judicious and beneficial. The future of science will be greater than its past; and its honest, diligent cultivation will more largely affect the national life than it has ever done heretofore.

The address of Miss Alice C. Fletcher, before the Section of Anthropology, will be found in part in the SCIENTIFIC AMERICAN SUPPLEMENT.

Before the Section of Physics an address was given by Vice-President Mees on "Electrolysis and Some Outstanding Problems in Molecular Dynamics." He reviewed the history of the century that has elapsed since the first note was made of chemical action having been

produced by electricity. Volta's great gift to the world was the voltaic battery, though his "contact theory" has been a barrier to the progress of investigation. Nicholson and Carlisle opened the field for the study of electrolysis by the decomposition of water. The substance decomposed is called an electrolyte; the battery terminals are electrodes, the one bringing the current being the anode, and the one carrying it away the cathode. Particles moving toward the anode are anions and toward the cathode are cathions, and the general law is that the electrolyte is split into two parts, and only two, no matter how complex its structure may be. The various theories propounded to explain this law were reviewed. Important experimental contributions have followed one another, batteries have been perfected, physical actions studied, measuring instruments invented. Faraday's laws were stated and his work reviewed rapidly. The contributions of Helmholtz, Thomson, Boscha, Favre, Gibbs, Hittorf and others were mentioned. Kohlrausch's work shows rare patience and skill. His law is that solution affects dissociation, and that in the case of fused substances heat is a factor to be considered. The question, Whence comes the electrical charge upon the ions? is not yet solved. Whether these charges are inherent in the molecule or whether they result from the work done upon the molecules in dissociation is not known. The determination of the relative values of solution pressures is simple, but of their absolute values difficult. It is impossible in this brief synopsis to do justice to Prof. Mees' statement of the various problems that remain to be conscientiously studied, but his concluding appeal is noteworthy, that American physicists should add their full share to the development of the theories which cluster around the one central pillar on which all science is built today, namely, the conservation of energy, and which is now more clearly defined and strongly intrenched than ever before.

Prof. William R. Lazenby, vice president of the Section of Social and Economic Science, gave an opening address on "Horticulture and Health." After a somewhat exhaustive treatment of the value of fruit as a diet, showing by means of chemical analysis and percentage tables what parts of different fruits go to build up the various compounds of the human body, he gave the results, from the pecuniary side, of many years' experience at the Ohio State University and elsewhere to show the practicability of a family's getting a good living from a small area of well located ground devoted to the raising of small fruits, flowers and forced vegetables. From the æsthetic side also, work in this direction is to be highly recommended, because the resulting close association with Nature in her most beautiful forms develops the best sides of character.

The socialist has his dream of an ideal world. He believes it possible to have a social and industrial order wherein all freely serve, and all are served in return; where no drones or sensualists can abide; where education is as free and common as air and sunshine, where nothing but service secures approbation and nothing but merit wins esteem; where mental development and moral culture is the aim, as well as possible attainment of all.

In conclusion the speaker said: "I sincerely hope that the obvious advantages of forming horticultural colonies will be widely and rapidly improved. It would correct the unhealthy congestion of our towns and cities. In no other way can so many be provided with homes, regular employment and good living. By a horticultural colony I mean the association of from one hundred to five hundred families in the purchase of a suitably located tract of land, embracing about one acre for each individual. The location, which should be reasonably near some large commercial center, and the purchase of this land, should be intrusted to the most capable and honest members of the association. It should be carefully surveyed and divided into a few small lots, centrally located, for the necessary mechanics and merchants, but mainly into areas of from one to ten acres for horticulture. Ample reservations of the best sites should be made for a schoolhouse, town hall and public park. The streets should be embowered with shade trees, and every owner of a lot or garden should be encouraged to beautify and adorn it.

"I believe such a co-operative effort would secure a modest but comfortable home for any family that could contribute from $300 to $500. If the contributions ranged from $500 to $1,000, a proportionally better home could be secured. Some of the advantages of such colonization over the isolated system of taking up a homestead may be summarized as follows:

"First.—One-tenth of the land required under the old system would be found abundant.

"Second.—It could be far better selected with reference to markets, and more suitable allotments for fruits, garden vegetables, floriculture, nursery, etc. could be made.

"Third.—Few draught animals and little expensive machinery would be required.

"And, finally, man's social and gregarious instincts would be satisfied.

"While ignorance and miseducation ruin thousands, I believe that poverty resulting from involuntary idleness sends more men and women to perdition than any other cause.

"Horticulture may never become a universal panacea for destitution and crime, yet I have a joyful trust that thousands will be awakened by it to a larger and nobler conception of the true mission of labor, and by its practice, along the path of simple, honest, persistent work, life may be made easier, and men and women healthier and happier."

"Botanical Gardens" were discussed by Prof. N. L. Britton, of New York City, in his opening address in the Section of Botany. He said that these were primarily formed for purely utilitarian objects, the chief being the procuring of plants for medicinal purposes. The function of such gardens as aids in scientific teaching and research, the one which at present furnishes the dominating reason for their existence, did not develop much, if at all, before the sixteenth century. The four main elements of the modern botanical garden have been brought into it successively and gradually. They are (1) the utilitarian, or economic; (2) the æsthetic; (3) the scientific; (4) the philanthropic. These elements have been given different degrees of prominence according to local conditions; some gardens being essentially æsthetic, some mainly scientific; while in our public parks we find the philanthropic function. The speaker dwelt on each of the four elements, showing how it should be developed in connection with an ideal botanical garden, and with due recognition of the other features mentioned. Then leaving the theoretical portion of his subject, he devoted the remainder of his address to a description of the main gardens of the world, illustrating his remarks by numerous stereopticon views. There are more than 200 so-called botanical gardens, but few of them meet the requirements now laid down. Some are pleasure parks with the plants labeled; most of them pay some attention to taxonomy and morphology; many to economic botany; while only a small number are admirably equipped in all respects. The United States contains ten such gardens, of which by far the best is that connected with Harvard University. The one established a year ago in Bronx Park, in the northern part of New York City, is one of the latest additions to the number. It is liberally endowed, and the plans for its development have been drawn on a broad basis. Through a co-operative agreement entered into with Columbia University, the herbarium and botanical library of that institution will be deposited with the garden, and most of the research and graduate work of the university will be carried on in the museum building.

Other vice-presidential addresses were: On the "Achievements of Physical Chemistry," by Prof. W. A. Noyes, before the Section of Chemistry; on "Intuitive Methods in Mathematics," by Prof. W. E. Story, of Worcester, Mass., before the Section of Mathematics and Astronomy; and on the "Artistic Element in Engineering," by Prof. Frank O. Marvin, of Lawrence, Kan.

The topic assigned on the programme to Prof. T. N. Gill, the vice president of the Section of Zoology, was "Animals as Chronometers for Geology;" but the renewed and lively interest in the ever troublous subject of nomenclature led him to take that as his theme instead. He was also induced by the fact that the last Zoological Congress held at Leyden had asked for the consideration of this important topic. Prof. Gill's address was an exhaustive review of the history of nomenclature, from the time of Linnæus, when 4,000 animals, exclusive of insects, were known, to the present, when there are 400,000 species of animals. The main heads of this admirable and extended treatise—for such it really is—were the following: The commencement of binominal nomenclature; the origin and significance of trivial names; whether the first species of a genus should be regarded as its type—the speaker saying decidedly that it should not be; as to the choice between names simultaneously published; the discrimination between families, super-families, sub-families, and groups; complaints as to the instability of nomenclature; his conclusion being that the "best thing to do now is to accept the current system, purified as much as possible by judicious and inexorably applied laws, hoping that in the future a less cumbrous system of notation may be devised." This will be a relief to those of us who have been perplexed and bothered with clashing scientific names, being now assured that we must put up with the present inconvenient nomenclature because it cannot well be helped.

Two public lectures, complimentary to the citizens of Buffalo, were given, with illustrations by the stereopticon. That on Wednesday evening was by Dr. J. W. Spencer, concerning "Niagara as a Time Piece," giving the eminent author's well known views and theories, to which ample space has already been given in these columns in reports of last year's proceedings of the A. A. A. S. That on Thursday evening, by Messrs. H. C. Mercer and Edward D. Cope, gave "The Results of Cave Explorations in the United States and their Bearing on the Antiquity of Man." A public reception was given, on Tuesday evening, by the ladies of the Twentieth Century Club and the members of the Buffalo Society of Natural Sciences, which was a most delightful social event, and enabled the guests and their hosts to form a mutual acquaintance with each other.

Reports of the special work done by the several sections, as well as of the various scientific excursions to Niagara Falls and elsewhere, will be given soon. Among modifications taken under favorable consideration is one for combining, in future summer meetings, the transactions of the chemical and the geological societies, and perhaps other affiliated societies, with their respective sections of the A. A. A. S., so as to prevent the duplication of work and complication of machinery of organization. The fact is plainly evident that some plan is necessary for managing with more system and fairness for all concerned the vast number of valuable scientific papers offered every year to be read in the nine sections now existing. Possibly the plan may meet with favor that is already adopted by the American Society of Civil Engineers, of publishing and distributing beforehand among the members the various papers accepted, and then having them brought up for discussion only. This might give more time for previous investigation and result in more thoroughly satisfactory conclusions. HORACE C. HOVEY.

### The Brooklyn's Great Run.

The new cruiser Brooklyn, on August 27, proved herself to be very fast, by covering a distance of 83 nautical miles in a continuous run at an average speed of 21 92-100 knots. She also maintained an average of 22 9-10 knots during a portion of the run. This latter speed was accomplished in the run back between the third and fourth buoys, a distance of about 7 miles. She also, between the first and second buoys on the return, reached the high average of 22 48-100. In her run of 83 miles she had a boiler pressure of 160 pounds and an average of 138 revolutions a minute, with a maximum of 140 revolutions. By her performance she earns for her builders, the Messrs. Cramp, of Philadelphia, a bonus of at least $350,000, a premium of $50,000 being allowed by the government for each quarter of a knot developed in excess of 20 knots. Nothing is allowed for the extra fraction of a quarter of a knot, and, unless the computations of the official naval board should increase the average to 22 knots (which is not likely), the bonus will be no greater than if the Brooklyn had averaged 21¾ knots.

The vibration was scarcely felt by those on board at any time during the entire run, though the engines were, as a matter of course, worked to their highest tension throughout.

The course was marked by seven buoys, at each of which was anchored a revenue cutter or lighthouse tender. On these vessels were naval engineers, who took observations of the tide conditions, which will enter into the conclusions of the naval board in its report of the trial to the Navy Department. The following table shows the time taken and the speed made between the buoys:

| Buoy. | Time. | Elapsed Time. | Speed. Knots. |
|---|---|---|---|
| 1 | 10:45·13 | .... | .... |
| 2 | 11:04:17½ | 19:04½ | 21·70 |
| 3 | 11:23:07½ | 18:50 | 21·98 |
| 4 | 11:42:56¼ | 19:48¾ | 20·90 |
| 5 | 12:01:45¼ | 18:49 | 22·29 |
| 6 | 12:21:03¼ | 19:18 | 21·45 |
| 7 | 12:39:54½ | 18:51¼ | 21·96 |

Total elapsed time, 1:54:41¼; knots, 21·71.

Following is the record for the return course:

| Buoy. | Time. | Elapsed Time. | Speed. Knots. |
|---|---|---|---|
| 1 | 1:03:13 | .... | .... |
| 2 | 1:21:38½ | 18:25½ | 22·48 |
| 3 | 1:40:35 | 18:56½ | 21·87 |
| 4 | 1:58:56 | 18:21 | 22·90 |
| 5 | 2:18:23¼ | 19:27¼ | 21·28 |
| 6 | 2:37:00½ | 18:37¼ | 22·26 |
| 7 | 2:55:45 | 18:44½ | 22·08 |

Total elapsed time, 1:52:32; knots, 22·13. Grand total, 3:47 20½; grand average knots, 21·92.

The principal dimensions of the Brooklyn are as follows:

| | |
|---|---|
| Length on load line, feet | 400·50 |
| Beam, extreme, feet | 64·83 |
| Draught, mean, normal, feet | 24·00 |
| Displacement, normal, tons | 9,150 |
| Displacement, trial, tons | 8,150 |
| Indicated horse power | 16,000 |
| Total coal capacity, tons | 1,650 |
| Coal carried on normal displacement, tons | 900 |

This vessel has twin screws. The engines are of the vertical, triple-expansion type, four in number, two on each shaft, and in four watertight compartments. The forward engines are readily uncoupled from the after engines for cruising at low speed. The boilers are seven in number. Watertight bulkheads extend about twelve feet above the water line.

### Berlin Suburban Traffic.

In 1891 fares were reduced about 50 per cent. The number of tickets sold has increased by 75 per cent, and the receipts more than 29 per cent. Very large crowds have to be accommodated on holidays, there having been nearly 1,000,000 passengers in one direction on Whitmonday.