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OUR FIVE HUNDRED THOUSAND DOLLAR COMMISSIONER TO VIENNA.

Another communication from the United States Commissioner to the Vienna Exposition, designed as a refutation of the facts presented in our editorial of last week, will be found elsewhere in this issue. It is devoted to the pointing out of certain errors in our article; and exception is first taken to a circular mentioned therein. After quoting the words of the publication, our correspondent makes the positive assertion that it never issued from his office "nor does it purport to be." We have but one comment to make upon this remarkable statement, which is that General Van Buren has evidently not taken the trouble to read the document in question; if he had, he could not with truth publish such a denial. The circular comes apparently from the Advisory Committee of Group 13—a body supposed to be appointed by the Commissioner—and concludes with these words: "Manufacturers of machinery will address T. B. Van Buren, Commissioner of the United States, 51 Chambers street, or the undersigned" (Professor Thurston, of the Stevens Institute). So far as our perceptive faculties extend this seems to come from General Van Buren; and even were his name omitted, the fact of Professor Thurston—who, by the way, is to be addressed only in the alternative—being his agent renders the Commissioner legally responsible for such official emanations.

"In all my statements upon the subject," our correspondent continues, "I have endeavored to give a careful and true account of what has been done," etc. Then we must sympathize with the General in the unfortunate failure of his well-meant efforts in this direction. In the sentence immediately preceding the words above quoted, he makes, innocently we are sure, assertions which are wholly without foundation, and on which he further enlarges in the succeeding paragraphs of his letter. We are informed: First, that the Austrian government has made concessions. Second, that a valuable trade mark treaty has been effected, which is strong evidence of Austrian good will. And third, that exhibitors in the Vienna Exposition are protected by a certificate which operates as a full patent.

What the "concessions" are we have yet to discover. As for the trade mark treaty—which, in connection with everything else relating in any way to Austria, seems to be regarded by the Commissioner through rose-tinted spectacles of the deepest hue—being any proof of Austrian good will or affection for this country, is sheer nonsense. The provisions of our law on the subject of international trade marks make the matter one of simple reciprocity; that is, we guarantee to protect the trade marks of a foreign nation if that nation will in return engage to do the same by us. The offer is open to the world. Large numbers of Austrian manufacturers export goods to the United States, and they want protection here for their marks; consequently it was to Austria's direct interest to take advantage of the treaty, and she did so.

As to that exposition certificate, we have repeated again and again, and proved our assertions beyond all peradventure by the best evidence, that it does not ensure one iota more of security against the infringement or piracy of inventors. It is simply an enactment, as a Vienna correspondent of the New York *Herald* truly states, "to allow inventors to bring their inventions to the Exposition and exhibit them and take a patent under the old law before the 31st day of December," after the show is concluded. It is manifestly not a patent, nor can we see how any one can trace in it the remotest resemblance to such; it may be refused by the Director General to any inventor or exhibitor without appeal; and it merely places the limit of the time during which an invention may be introduced into Austria without being patented at one year. It does not modify the obnoxious laws, nor is

it anything beyond a decoy to deceive persons who, like the Commissioner, are inexperienced in Austrian patent law practice. These facts seem perfectly self-evident, and we cannot understand by what course of logic General Van Buren expects to persuade himself or any one else endowed with reasoning faculties to the contrary.

Our correspondent remarks that the opposition of a portion of the press, which by the way includes three of the New York dailies beside ourselves, will postpone or prevent the success of his endeavors in Washington. We hasten to say that such is precisely our intention, just so long as he persists in manœuvring to obtain any such exorbitant sum as half a million of dollars, the greater portion of which, according to his own showing, will be needed to pay his expenses and those of his assistants in Vienna. Now, in regard to these assistants: General Van Buren flatly denies that he has sixty-five sub-commissioners, or whatever they may be termed, or even one fifth of that number. The General should not rely so implicitly upon his memory. We have before us a circular: date November 15, 1872: signature T. B. Van Buren: contents, a description of the importance of the Exposition and a list of an advisory committee (of which the Hon. S. B. Ruggles is Chairman) composed of thirty gentlemen. Thirty is more than one fifth of sixty-five. The last mentioned number, let us explain, we specified under the impression that there were but thirteen gentlemen in the above mentioned advisory committee, coupled with the assurance of a member of said body that each person appointed four assistants, which made up a sum total of sixty-five. Now, however, it appears there are twenty-eight advisers, not including the chairman and secretary; consequently, instead of there being sixty-five officials, there are now one hundred and forty-three. Was the above described circular published by General Van Buren or by an irresponsible somebody? Or is it a forgery? Or were we grossly deceived by the gentleman who informed us that the Commissioner not only appointed but requested him to serve on the advisory committee? Or does our correspondent now mean to repudiate the whole document, and with it the gentlemen therein named? After thus disposing of our "error," the General proceeds to observe that the few persons he has appointed are scattered about the large cities distributing programmes, etc. We were not aware that New York had lost so many of her prominent citizens, or that such gentlemen had undertaken agencies for the Vienna Exposition; for we recognize very nearly all of the thirty advisers as well known residents of the metropolis.

The Commissioner closes his communication with the suggestion for the government to pay all the bills generally, and especially, of course, the expenses of a certain number of commissioners—said number, we naturally infer, is thirty. Now, as there is no earthly reason why one set of volunteer employees should be paid and not another, the hundred and odd assistants will doubtless expect to come in for a share of the spoils; so that the half a million of dollars will go but a short distance, and the unfortunate exhibitors in the end bid fair to be of very secondary consideration.

ASTRONOMICAL NOTES.

Under this heading, we publish in another column a variety of interesting astronomical information furnished for our readers by Professor Maria Mitchell, Astronomer of Vassar College. From these notes, it appears that the surface of the sun has for some time past exhibited the presence of large numbers of dark spots, the movement of which across the great luminary attracts the attention of observers. These spots may now be seen through an ordinary opera glass, care being taken of course to protect the eyes by the interposition of proper colored media.

The precise character of these sun spots is still unsettled. Although to the eye of man they appear as dark or black bodies, it is certain that they are in reality very luminous; but they are less luminous than the surrounding portions of the sun's surface, and hence they appear dark to the eye, just as the most brilliant gas light appears black when interposed between the eye and the sun. The prevailing opinion based upon the spectrum observation, is that the spots are composed of thick luminous masses or clouds of gases of various substances, among which are found iron, calcium, barium, magnesium, sodium, hydrogen, aqueous vapor. Some observers think the spots have a semi-fluid consistency, while Zöllner regards them as a kind of slag or scoria.

The positions and appearances of various heavenly bodies, to be seen on these clear winter evenings, as mentioned by our correspondent, will be read with general interest.

A REMARKABLE TEST PLATE.

One of the devices used by microscopists to test the correctness and power of their lenses consists of a glass plate, upon which lines of exceeding fineness are engraved by the diamond. For this purpose a small ruling machine is used, all the parts whereof must be made with unusual nicety. In Europe the test plates made by M. Nobert, of Prussia, have long been celebrated for the fineness of their ruling, and in this country those of Mr. L. M. Rutherford, of New York city. The expense of the best Nobert plates has been \$100 each, and the finest rulings heretofore done have been 120,000 lines to the inch. There are few microscopists who have ever been able to see or resolve the lines of these plates owing to the difficulty of properly lighting the plate. Dr. Woodward, of the United States Army, is among those who have succeeded in doing so. He has not only seen them but has photographed the lines.

Professor F. A. P. Barnard, President of Columbia College, in this city, has lately received from Nobert a new test plate, ordered some two years ago, at an expense of \$200, which

surpasses in the fineness of its ruling anything heretofore produced. It is a slip of glass $3\frac{1}{2}$ inches long and $1\frac{1}{4}$ inches broad, in the center of which the unassisted eye may discover what appears to be a mark perhaps the fiftieth of an inch in width. But when placed under the microscope this mark is found to be composed of a great number of parallel lines. The plate, in fact, contains twenty test bands, that is to say, twenty series of lines. Each series contains such a number of lines as will occupy or more than occupy the field of view of the microscope. The fineness of each band or series varies from a ratio of three thousand lines per square inch up to two hundred and forty thousand lines per square inch; this last band contains double the number of lines ever before ruled on a test plate. Nobert is said to have remarked, on sending this plate, that if the microscopist, on seeing these lines, found that they were not sufficiently fine, he would engage to rule a still finer plate. When Professor Barnard succeeds in seeing them, doubtless he will let us know.

ITALIAN INDUSTRIAL PROGRESS.

With the exception of 10,000 tons of refined sulphur derived from the Roman mines, all of that material obtained from Italy comes from Sicily, and is exported in a crude state. The total value of the sulphur is nearly \$5,200,000, not including the export duty of two dollars per tun, which is paid by foreign buyers. There are about 19,000 workmen engaged in this industry, 5,000 miners and 14,000 operatives employed in transportation, refining, etc. The carrying of the sulphur from the mines to ports of embarkation furnishes labor for 20,000 additional workmen.

The iron drawn from Italy and the articles made therefrom represent annually a value of \$4,000,000. The production of the foundries does not exceed 22,000 tons. The total product is but one fifth of the entire amount consumed in the country.

Lead and zinc are derived almost exclusively from Sardinia. Their extraction requires 10,000 workmen, and quantities to the value of \$2,400,000 are produced. The lead ore is argentiferous but the silver is found in extremely small amounts. The zinc is exported to Belgium and England. The quantity obtained yearly reaches 60,000 tons.

THE FAIR OF THE AMERICAN INSTITUTE.

The American Institute Fair formally closed on the 20th of November last. Mr. N. C. Ely, Chairman of the Board of Managers, delivered the concluding address, stating that the Exhibition had been on the whole successful, though at one period its receipts were seriously impaired by the stoppage of public travel through the horse disease. The usual congratulatory remarks to managers and exhibitors were pronounced, after which such premiums as had been awarded were published. Medals of special award were lavishly distributed on almost every prominent article in the Fair. Several recommendations, we learn, have been made for the Grand Medal of Honor, but no award of this distinction has as yet been made. As compared with previous exhibitions, the Fair has been fully up to the standard in the variety of entries and important inventions presented, though it was hardly expected that such would be the case, owing to the excitement of the late elections directing public attention into other channels.

As there still remain a few articles of merit to be noticed, most of which were recent additions to the Fair, we give brief descriptions of those which seemed to us most interesting.

ELECTRIC CLOCKS

were exhibited in various styles by Messrs. Himmer and Autenrieth, 371 Pearl street, New York. The chief obstacle which inventors of electric clocks have heretofore had to encounter is the inequality of the electric current, which even from the most constant battery varied with the condition of metals, temperature, strength of solutions, etc. To avoid this difficulty, Mr. Himmer conceived the ingenious idea of combining the constant action of a weight with the electric current, so that, in his own words, "in place of driving the pendulum by the direct action of the electric current, when passed over helices of wires and charged by magnetic attraction, a little weight, of not more than half a grain, is used, which, by its descent, drives the pendulum, and which, after every oscillation, is lifted up to its former position by the electromagnetic power of the battery."

The clock is in fact wound up after every oscillation, the battery lifting up the weight a distance of only some quarter of an inch. As the latter is very light, an extremely small electric power is wanted to accomplish this labor. For this purpose Mr. Himmer has invented the constant battery described in a recent number of this journal. Another advantage of the application of electricity to clocks is the possibility of moving the hands of any number of clocks through the oscillations of a single pendulum. This is effected by attaching, to the arbor of the second hand of the clock, a notched cam or break circuit, whereby, once during every revolution of the arbor or at any interval desired, connection is established and broken with any number of other clock works.

THE WOODBURY BRUSH MACHINE,

one of the most remarkable and ingenious inventions that has ever come under our notice, has been exhibited in actual operation. This device was fully explained in a recent number of our journal; its operation consists in inserting the bristles in solid brush backs in such a way that it is impossible to remove them. During the tests made before the judges, the machine made tooth brushes and coarse scrubbing brushes with equal facility, placing the bristles in ebony,