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THE DOMESTIC TELEGRAPH.

Not many evenings ago, an intelligent, gentlemanly looking individual presented himself at our door and asked "if we didn't want the district telegraph put into our house." At the same time he handed over for our examination a very pretty little instrument, composed of cog wheels and somewhat resembling a clock. "We attach the instrument to the wall," he said, "in some convenient position in your house, and to it we connect a wire leading to your roof, where it unites with another wire that extends to one of our district offices on Broadway." Pointing to a small knob, he continued: "If a fire breaks out in your house, you just push that lever, and in three minutes the firemen will be here. If thieves break in, you move that other lever, and in three minutes the policeman will make his appearance. If you want a special messenger to go upon any sort of business, night or day, you just turn this little button, and in three minutes the man will be at your door ready for service. The signals you thus make are all received and recorded at our Broadway office, where we keep a force of attendants, in readiness at all hours, to execute the requirements of our customers. Your wife or any other intelligent person can make the signals. We make no charge for putting the instrument into your house or for keeping it in order; but you pay us \$2.50 per month for its use and fifteen cents an hour for the time occupied by our messenger in doing your business. When you go away to the country in summer, you can have an attachment put on, so fixed that, if burglars attempt to break in, an alarm will be sounded at our office, when our policemen will quickly surround the house, and catch the thief in the act."

We rather liked the idea of having such a telegraph in the house, gave the order, and it was promptly put in.

In the course of a week or so afterwards, thinks we to ourselves, that is our wife and we, "let's try our telegraph just for fun, and see whether the telegraph folks are as wide awake as they pretend, or whether they are napping." This was early in the morning, just between getting up time and breakfast—before business begins—the hour when night hands go home and day hands have not yet come—the time when the manager is probably not on hand. Now let's see what this new-fangled telegraph is good for. So we pressed the knob, and there followed a slight click and a buzz. We looked at our watch, went down stairs, took seats at the breakfast table, when we were startled by a ring at the door bell. "Messenger from the District Telegraph Office. Got your signal. Wants to know what is wanted," was the report that came to us. Looking at the watch we found that just two and a half minutes had elapsed since we gave the signal. We felt a little bit sheepish in being obliged to tell the messenger that we had sent for him "just for fun, to see if he was really awake," etc., and as we were entirely satisfied on that point, he retired, sorry that we had no real business for him to do.

After breakfast, we went to the company's office, where we found a Morse paper recording apparatus, with which the various dwelling houses in the district are connected. Whenever a signal is given from any of the houses in the circuit, a gong sounds in the office, which notifies the attendant, and at the same time the telegraph clock work is set in motion; the paper moves, and upon it a signal is stamped and re-stamped or repeated. Each house instrument gives a different signal, and the various signals, with the names of the occupants and numbers of the respective dwelling houses, are registered or tabulated on the wall, like a hotel indicator. By glancing at the register, the attendant sees at once from what house the signal has come, also its nature, whether a fire has occurred, a robbery going on, or a messenger needed.

The office is in connection with the city fire telegraph and police offices, and instant signals are sent thither if required.

Taken altogether, this district or domestic telegraph is a most useful and valuable institution, promotive of comfort, convenience, and safety of families. That it will soon come into general use, cannot be doubted. The wires are so arranged that in case they are severed, either by design or accident, an alarm is instantly sounded at the district office and the repairs are quickly effected.

SUMMER HEATS IN VARIOUS COUNTRIES.

For the benefit of our readers who are suffering under the effects of the present heated term, we have collected, from various sources the following, relative to the extreme summer temperature of the different countries of the world.

Thibet, situated in Central Asia, between the thirtieth and thirty-eighth parallels of north latitude, is a decidedly hot country, so hot, indeed, that even the fiercest heat which the firemen in a sea-going steamer have to endure is comparatively insignificant besides its midsummer temperature. "Misery loves company," and as the reader sits slowly melting with thermometer at 98° Fah., he will probably gather consolation from the knowledge that the unfortunate inhabitants of the above mentioned country are worse off than himself. The intense heat, reaching 150°, doubtless prevents their remaining either in their houses or their garments during the day, but such is the inconstancy of the weather that if they venture to remain out doors or to continue in their primitive costume throughout the night, they may possibly be frozen to death before morning.

Senegal in Africa and the island of Guadeloupe in the West Indies are next to Thibet in summer heat; the weather is variable, but often reaches a temperature of 130°. Still more changeable is the climate of the Great Desert of Sahara, where the thermometer, after rising to 130° during the day, at nightfall descends to among the fifties. In Persia, fearful plagues and pestilences are bred by an atmosphere heated to 125°. At Calcutta and on the Delta of the Ganges, points from which the Asiatic cholera is said to begin its western march, the mercury rises to 120°, while in Central America the same limit is attained.

In the jungles of Afghanistan and in the deserts of Egypt, 110° is the maximum. Strange to say, the same high temperature is reached in some of the interior valleys of California, although the average of the surrounding country is much lower. At Cape Colony, the diamond diggings in Africa, and in some parts of Utah Territory, the midsummer heat is 105°. This is next greatest in Greece, reaching 104°; then comes Arabia, 103°, the arid deserts of that country being much less heated than the vast expanse of Sahara. Now follows a strange anomaly: it will hardly be credited that our blue nosed neighbors in Canada ever experience such a temperature, but it is nevertheless a fact that at Montreal the extreme summer heat is often as high as that of the deserts of Arabia, both being 103°.

Our own State—New York—is not far behind, its summer limit being 102°. Spain, Upper India, Canton, China, the island of Jamaica, and most of our Southern States average 100°. With the exception of New York, 98° is the highest range in the Northern States. The island of Mauritius is next on the list, having a summer temperature of 96°; then come Sierra Leone in Africa and Guiana in South America, both 94°; then Ceylon, 92°. Throughout France, in St. Petersburg (Russia), Denmark, Belgium, Burmah, Shanghai in China, Penang, the Sandwich Islands, Buenos Ayres, and the islands of Bourbon and Trinidad, the average is 90°. That of Nova Scotia and the majority of the Azores islands is 87°. England, Ireland, Sicily, Siam, and Peru in summer are of about the same temperature, not exceeding 85°. Peking in China, Portugal, and Natal Colony in Africa all have mild summers, 80° being the extreme. In Siberia, 77° is the limit. In Western and Southern Australia and the eastern and western parts of Scotland, the temperature does not rise above 75°. In Italy, Venezuela, and Madeira, 73° is the maximum.

The thermometer in Prussia, Victoria Land, and New Zealand rarely rises above 70°; in New South Wales not above 68°, nor in Switzerland and Hungary, above 66°. Colder still are the summers in Bavaria, Sweden, Northern Siberia, Tasmania, and Moscow, in Russia, where 65° is the extreme limit. Norway, Greenland, and Newfoundland have no weather warmer than 60°; 55° is the maximum for Central Scotland, the Orkney Isles, Patagonia, and the Falkland Islands; and finally, amid the ice and snow of the arctic regions, the heat of midsummer is below 50°.

Iceland, however, is colder still. The northern portions of that country virtually have no summer; on its southern shores, which are swept by the Gulf Stream, the temperature sometimes rises to 45°. Last comes Nova Zembla, bleakest and most inhospitable of islands, lying frozen in the Arctic ocean, on the confines of Northern Asia. It can be truly said that in that country there is no summer; for even in these midsummer days, while we suffer under the intense heat, there the mercury fails to rise beyond 34°—two degrees above the freezing point—and this is the very extreme of temperature.

FUNCTION OF POTASSIUM IN SOILS.—According to Nobbé, the presence of potassium in soils is necessary in order to enable the chlorophyll grains of the leaves to form starch, sodium and lithium being unable to replace potassium in this function, the latter indeed being actually injurious. He has also ascertained that the different combinations of potassium vary very much in their value, the chloride being by far the most efficacious.

THE NEW PATENT LAW OF CANADA.

We are indebted to the editor of the New York Daily Witness for an official copy of the new patent law lately passed by the Dominion Parliament, and which goes into effect September 1, 1872.

As this new law provides for the grant of patents and caveats to American citizens, our readers will doubtless be interested to know its general features, and we therefore subjoin an abstract.

The Canadian law is somewhat peculiar. It appears to contain a mixture of the English, American, and Continental systems, together with a few original articles.

Under the English and American laws, the patentee may exercise his own discretion as to the date when he commences the manufacture of his improvements. In consideration of making known his invention, the exclusive right to it for the period of the patent is guaranteed to him, and he may do as he thinks best about introducing it. If he chooses not to work the patent until a late date, or even not at all, it is his own affair. The grant is his and holds good during its allotted term. But at the end of the term, the invention becomes public property, and all persons may then freely enjoy its benefits.

The Canadians have adopted the Continental plan by requiring that the invention shall be actually worked in Canada within two years from the date of the patent on pain of forfeiture of the grant. Provisions of this nature are generally discouraging and inconvenient to inventors. But the proximity of Canada to this country, and the fact that Americans may, during the first year of the patent, make their goods here and take them to Canada, still enjoying protection under the patent, will greatly assist them in establishing the manufacture there within the period required.

Any American invention, even if it has been already patented here, may also be patented in Canada, provided that the American patent is not more than one year old. But if the sale and manufacture of the article has been commenced in Canada before the grant of the Canadian patent, the parties so manufacturing may continue the manufacture after the issue of the patent, without accountability to the patentee. But all other persons will be required to obtain the consent of the patentee before they can sell or manufacture. Our citizens can readily avoid any difficulty on this score by applying for the Canadian patent before the American patent issues.

The Canadian law affords suitable facilities for the sale of part rights in patents, and for the record of assignments. But these privileges appear to be somewhat nullified by another clause, of singular phraseology, which reads as though it was intended to empower the owner of a paltry town right to destroy the validity of the entire patent, should he choose to do so, thus sacrificing the interests of all other owners or workers under the patent, without their knowledge or consent. To effect this nullification of the patent, a part owner has only to import or cause to be imported into Canada a single example of the patented article. This section evidently needs modification.

Another incongruous section is that which punishes the patentee with fine and imprisonment if he fails to stamp the word "Patented" and the year of the patent upon every patented article. The law is specific upon this point; but compliance with it would in many cases be almost impossible. For example, upon needles, hooks and eyes, percussion caps, eyelets, etc., it would be difficult to place a legible stamp. In this country, the law directs that the stamp shall be placed upon the package when it cannot be conveniently affixed to the article.

The Canadian law is also faulty in making the omission of the stamp a penal offence. A patentee's own interests will always lead him to attach the stamp to his goods; and whether the stamp is affixed or not, the public is benefitted, not injured, by the issue of the improved goods. Surely a patentee ought not to be treated as a criminal for the omission of a trivial thing which only concerns himself.

In this country, if the patentee fails to stamp the date of the patent upon his goods, and if any persons not knowing that such goods are patented should imitate them, they cannot be held liable for infringement of the patent. This is a more just and equitable provision than that of Canada.

The Canadian method of deciding interferences is novel. If two persons apply for a patent for the same invention, they are each to choose an arbitrator, and the Commissioner of Patents is to appoint a third. The arbitrators have power to summon witnesses and take evidence, upon which they determine who is the prior inventor, and to him the patent is issued. We shall watch the workings of this peculiar mode of settlement with much interest.

ABSTRACT OF THE NEW CANADIAN PATENT LAW, TAKING EFFECT SEPTEMBER 1ST, 1872.

The Canadian Patent Office is attached to the Department of Agriculture, the Minister whereof and Deputy are, respectively, Commissioner and Deputy Commissioner of Patents. The Governor appoints clerks and assistants. No employee in the Patent Office shall hold an interest in any patent. The Commissioner shall publish an annual report, a list of patents granted, and may also print the specifications and drawings if he thinks best.

Any person having invented any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement on any art, machine, manufacture, or composition of matter, not known or used by others before his invention thereof, and not being in public use or on sale for more than one year previous to his application in Canada, with the consent or allowance of the inventor thereof, may, on a petition to that effect presented to the Commissioner, and in compliance with the other requirements of the