

A HANGING GARDEN AND A MODEL OFFICE BUILDING.

BY H. C. HOVEY.

Circumstances have combined to make the city of Minneapolis remarkable in an architectural way. There is its location, to begin with. The broad sandy plain on which it lies reaches from the gorge of the Mississippi River back to Lakes Calhoun and Harriet, a breadth of about four miles. Lengthwise it extends from a rolling prairie whose hills are crowned by charming homes, nine miles southward to the cliffs around Fort Snelling. Underneath the surface of sand and loam is the Trenton limestone, on which rest the solid foundations for the great mills and other massive edifices, while the compact sand is firm enough to support lighter structures. Hence there is no need of the costly digging and blasting that makes similar work elsewhere so expensive. Excavations for cellars, sewers, water pipes, etc., are made at a comparatively light outlay. Then, again, every kind of building material is at hand, and of the very best quality. There is abundant clay for manufacturing the cream-colored bricks that give the city such a sunny look. The limestones and sandstones of the region are noted for their admirable variety of color and texture. Granites can be had capable of standing, by actual test, nearly double the pressure of those quarried along the Atlantic coast. The vast forests of the Northwest furnish every kind of lumber desired, whether for construction or for finish. The numerous glass works of the West make plate glass so cheap that almost every house makes use of it. It is safe and in every way practicable to pile up edifices to a height that might be hazardous if less durable and compact materials were used. Still another favorable consideration is the fact that the wisdom and good taste of the founders of the city were shown in the laying out of the original streets and avenues with ample width, varying from 80 to 200 feet, thus inviting the erection of costly mansions and public edifices, with the assurance that their noble proportions would not be hidden from observation.

During the past ten years enterprising young architects, who had yearned for a field in which to display their talents, have brought to Minneapolis the freshest and the best ideas and inventions of foreign as well as domestic architecture, besides here and there, it must be confessed, notions rather wild and fanciful. The general result, however, is a city of novel and often brilliant effects, so that the visitor is greeted by surprises whether he pushes along through the crowded business streets, strolls amid the luxuriant parks, or is whirled by the electric railway through the spreading suburbs.

My object in this communication is particularly to describe a model office building recently erected by the Northwestern Guaranty Loan Company, of which pictorial representations are also offered. The building is of immense size, yet combines beauty and grace with the necessary elements of strength and durability. It covers an area of half an acre, and boasts six acres of flooring. Its dimensions are 156 by 132 feet, and its twelve stories rise to the height of 172 feet. The observation tower rises 48 feet above the flat roof, making the total height 220 feet. The first three stories are built of green granite, and the upper nine stories are of red sandstone, and its four sides are finished alike. The interior materials used are iron, brick, terra cotta and antique oak. The building contains 400 office rooms, all heated by steam and supplied with water drawn from an artesian well 750 feet deep, the pipes running in summer through a packing of ice, thus giving all tenants an abundance of ice water free. These offices are arranged in suites, each suite having front windows, steel vault accommodations, and ventilated by the most approved methods. The entire building is brilliantly lighted by 15 arc and 3,000 incandescent lamps, connected by 31 miles of electric wire. It has been estimated that this ponderous structure weighs 100,000 tons. The basement contains a complete system of safety deposit vaults. The public law library, free to all tenants, includes more than 10,000 volumes, with full sets of American and foreign reports, and stand-

ard works of the latest and best editions. There are six elegant passenger elevators, besides a special one for freight. The twelfth story is entirely occupied by the Guaranty Loan Restaurant, including the public dining room, private dining rooms, cafes, smoking rooms, etc., elaborately and expensively furnished.

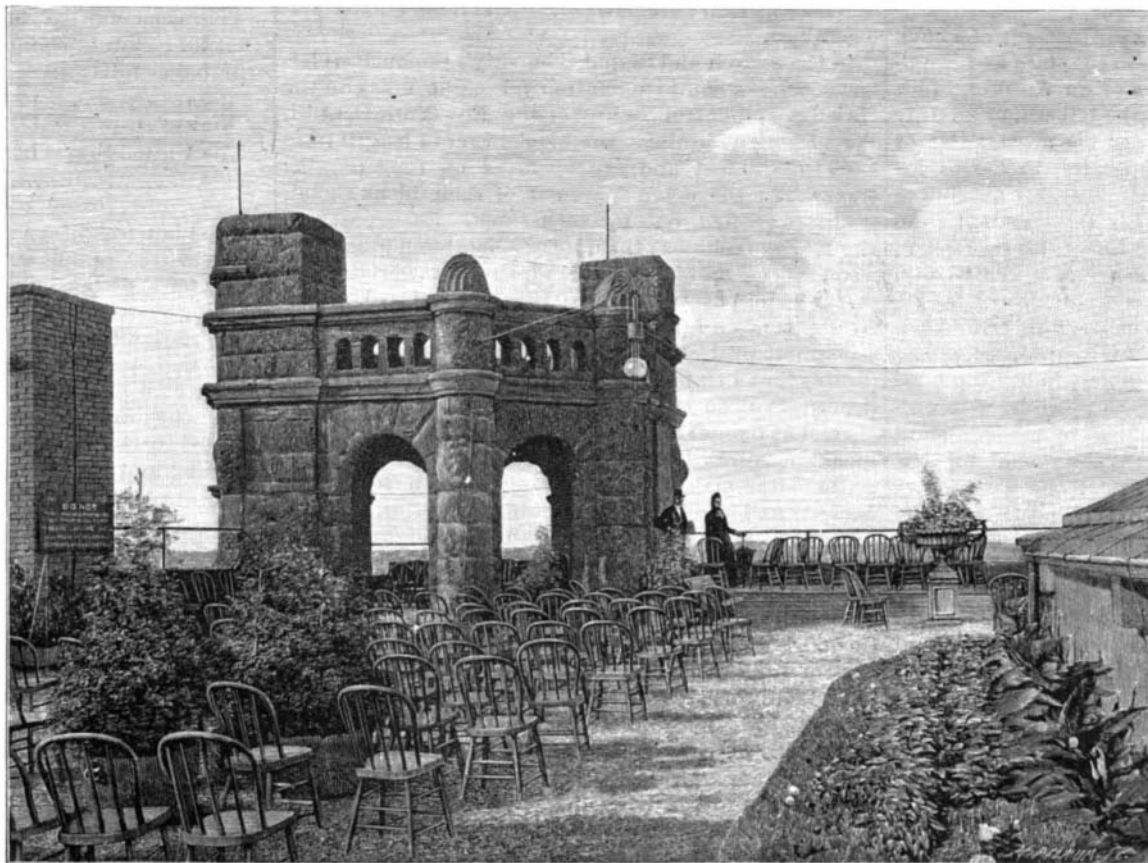
Probably the feature that would strike the visitor as most unique and charming is the beautiful garden on



JOHN RUGGLES, FATHER OF THE PATENT OFFICE.

the roof, 172 feet above the pavement, where pygmies seem to be walking, and the street along which toy carriages appear to be rolling. This garden is laid out with handsome gravel walks, beds of foliage plants and rare and lovely flowers. During the summer months band concerts are given here, and it is a very popular resort for sight seers. On a clear day, of which there are so many in this remarkable climate, one can see the entire city of Minneapolis and its environs, with the spires and towers of St. Paul not far away. The eye can follow the windings of the Mississippi to its juncture with the Minnesota River, or, in another direction, look off over a broad expanse of woodland and prairie, amid which are embosomed some of the loveliest lakes in the world.

The architects of this magnificent pile were Messrs. Townsend and Mix, whose intention it was to make



A HANGING GARDEN, MINNEAPOLIS.

this the finest commercial building in existence, and the citizens of Minneapolis think they have succeeded.

A WORLD'S fair, in commemoration of the four hundredth anniversary of the discovery of America, will be opened at Rio de Janeiro, under the auspices of the Brazilian government, in November, 1892.

THE FATHER OF THE PATENT OFFICE.

To the Editor of the Scientific American:

The interesting notices in your columns of those whose administration of our patent system in its early stages so largely contributed to its subsequent growth and usefulness seem to suggest some reference to the statesman whose wisdom conceived and formulated the patent bureau as we know it. There is good ground for belief that although the principle of examination of the novelty and utility of inventions for which patent protection was sought was recognized in the act of 1790, the plan of providing a special corps of examiners originated in the mind of Senator John Ruggles. There appears to be no printed record of the words with which this fruitful thought was presented to the Senate, but the writer is so fortunate as to be entrusted by the presenter's son and namesake with Senator Ruggles' notes for his famous motion. The committee asked for in the motion appears to have been forthwith appointed, and on the 28th of April, 1836, its chairman, Mr. Ruggles, presented the report and bill No. 239. The bill was so well thought out as to quickly pass, substantially intact, into law. It passed the Senate June 20, 1836, the House July 2, 1836, and received the executive signature July 4, 1836. Of the scarcely less important supplementary acts of 1837 and 1839 Mr. Ruggles was, in like manner, the author. Notwithstanding the mover's recognized personal weight, his bold prediction that "there will probably be no less than 1,000 patents sued out the ensuing twelve months," was doubtless received with skepticism by more than one of his listeners. G. H. K.

Washington, D. C., April 13, 1891.

SPEECH OF SENATOR JOHN RUGGLES BEFORE THE UNITED STATES SENATE, FIRST SESSION OF 24TH CONGRESS, INTRODUCING MOTION FOR A COMMITTEE ON PATENTS, DECEMBER 31, 1835.

Mr. President: Having had occasion to transact some business at the Patent Office, I have been led to inquire into the cause of delay which so often attends the suing out of patents, and in so doing, have come to the knowledge of the necessity, which I apprehend exists, of a revision of the laws of Congress relating to this subject. There has been no change or alteration in the laws of Congress providing for the encouragement of useful discoveries and inventions for nearly half a century except extending the privileges to a certain class of foreigners. For a long period after the law was passed under which patents are issued, there were no more than two patents issued in a year. Now there are 800 issued in a year, and they are fast increasing. There will probably be no less than 1,000 sued out the ensuing twelve months. It is not strange that regulations which answered very well at the time should now, under a change of circumstances, require revision and alteration.

One provision of the law of '93 is particularly inconvenient. It is that which requires a patent to be signed by the President, Secretary of State, and the Attorney General. If either of these officers happen to be absent when an application is made, the applicant is delayed until his return, or the patent must be forwarded to him wherever he may be. Such is very often the case in respect to the present Attorney-General. He is now in the State of New York, and I understand that it now requires some two or three months to get a patent through all the modes and tenses necessary to its validity, when, in fact, it ought not to take more than two or three days. It is a very inconvenient and unnecessary formality.

Again, sir, there is no discretion given to any of the officers of government to refuse a patent when applied for, though the subject of it be neither new nor useful. The suing out of a patent is a mere ministerial duty. The consequence is that patent upon patent for one

and the same thing, with, perhaps, some immaterial alteration, is granted to different persons, and thus a foundation is laid for contention and litigation. I understand, sir, that it is not infrequent for a visitor at the model room to take a drawing and description of a model there, and making some slight immaterial alteration, go into the superintendent's apartment and re-

quest a patent. He is told that the same thing has been already patented, but that does not deter him from his purpose, he demands a patent, and the minister of the law has no alternative but to make it out. And what does he do with it? Why, sir, he goes forth into every section of the Union and fraudulently sells out the right to make, use and vend in the States and counties to those who are ignorant of the piracy and who are led to confide in the seal of the United States and the signatures of the high officers of the government. This has got to be a regular business, and these fraudulent sales of void patents are estimated to amount to the incredible sum of half a million of dollars annually. And the government is made accessory to this extensive fraud by lending, in accordance with the law, the great seal of State and the signatures of its highest officers to these speculators in patent rights. Sir, it should not be so. What remedy is there? How can it be prevented? That is the inquiry which the resolutions propose to refer to a committee. There are other evils growing out of the present system, which, if not as flagrant, are yet sufficiently palpable to demand correction.

Mr. President, while the progress of the arts in this country has been rapid beyond all European example, their encouragement, so far as it consists in securing to those who have made useful improvements the benefit of their discoveries and inventions, seems not to have received that consideration due to a matter which has become of so much public importance. It may be thought necessary, on examination of the subject, to make a thorough reform and reorganization of the Patent Department, and it may be worthy of inquiry whether it should not be formed into a separate bureau, with a Commissioner of the Patent Office, and such subordinate officers or clerks as may be required for the proper execution of the duties of the department.

BRIEF LIFE SKETCH OF SENATOR RUGGLES, AUTHOR OF ACTS 1836-37-39. BY HIS SON, JOHN RUGGLES, OF THOMASTON, MAINE.

John Ruggles, son of Isaac and Hepsibeth (Parker) Ruggles, was born in Westboro, Massachusetts, October 8, 1789, graduated at Brown University in the class of 1813, and spent one year in Kentucky engaged in teaching. Read law in the office of Hon. Estes Howe, of Sutton, Mass., and with Hon. Levi Lincoln, Worcester, Mass. Commenced the practice of law in 1815, at Skowhegan, Maine, and removed to Thomaston in 1817. He became eminent in his profession, and was, I am told, not excelled in the State in legal acumen and ability.

In 1823 he was elected representative to the State Legislature, and was re-elected for seven successive years. From 1825 to 1829 was Speaker of the House, and again in 1831, resigning to accept the appointment of a Justice of the Supreme Judicial Court of the State. Resigned his seat on the bench in 1834, to accept the office of United States Senator.

On 31st December, 1835, Senator Ruggles submitted his memorable motion for appointment of a committee "to take into consideration the state and condition of the Patent Office," etc., and on April 28, in his capacity as chairman, reported the bill which on July 4, 1836, became the act that created the present Patent Bureau with its Commissioner and its provisions for the technical examination of applications for United States patents. At the end of his term retired from political life to resume the practice of his profession, which was continued until the age of seventy-seven years and only relinquished in consequence of failing health and inability to attend court; but, being wonderfully industrious and fond of his profession, employed much of his time at his home, in writing legal opinions and clearing up, as far as possible with outside aid, the matter in his hands. In one important case he undertook a very lengthy argument for law court which was said by members of the bar to have been equal to some of his earlier efforts. In early life he delivered many public orations, and contributed extensively to the press. In 1824 he married Margaret, daughter of Captain John George of the revolution. In mechanics he was always very much interested, having a naturally inclined and strong mechanical mind.

In stature he was 5 ft. 7 in., full form, weighing about 150 lb.; dark complexion and black hair.

He died June 20, 1874, at the age of 84 years 8 months and 12 days.

At the destruction of the Patent Office by fire, father heard the alarm and saw from his room where the fire was. He was the first one to enter the building, and opened a door to secure some papers he had left on a table. He seized the papers, but had released his hold of the door, which was being closed by a spring, and could not be opened on the inside. Realizing his danger, he succeeded in getting his hand between the door and the casing at the instant it was nearly closed.

Am unable to give you any information as to the "steps" by which my father's "consideration of the subject of patents grew into the organic act," or "any incidents connected with the conception and formu-

lation of the patent law of July, 1836," but I can readily believe that his fondness for mechanics was what prompted his efforts. During my residence in Massachusetts, and since my father's demise, many of his papers have been destroyed. I have no personal knowledge of the matters in question—was but six years of age when father went to Washington. You may have noticed that my father received a patent for a railway rail May 22, 1837.

The engraving is from a photo. copy of a portrait of my father taken about the time he presented the bill referred to.

Electricity as Applied to Railroad.

In a recent address delivered before the Young Men's Christian Association of the Delaware, Lackawanna and Western Railroad, Mr. P. H. Brangs, electrician of the railroad, gave a very complete account of the various ways in which electricity is applied to the operation of railways. He traced the history and nature of the railway telegraph, and showed how it led to the development of railroad signals, in which the electric current plays a prominent part. Under this head Mr. Brangs gave the following interesting details, as reported in the *Electrical Engineer*.

When the railroads of this country had grown to such proportions that the trains had to be run under short headway, it was found essential to adopt some plan whereby the safety of travelers might be made to depend upon something better than the caution of the engineer, and out of that necessity was developed the block signal.

The first railroad signal that was operated in this country was tested on the old Camden and Amboy Railroad, now a part of the Pennsylvania Railroad system. It was in the summer of 1863 that the midnight train from Philadelphia was filled with wounded soldiers returning home to Eastern hospitals. The train was delayed by a hot journal at Bristol. One hour later the Washington express from Richmond Junction, following it, not knowing of the delay of the preceding train, crashed into it, causing one of the most frightful railroad accidents on record. Mr. Robert Stewart was at that time employed on that road as telegraph superintendent, and was the first man to construct and experiment with railroad signals in this country. Very crude signals were used at first, which were changed from time to time until the present form of semaphores was adopted. In 1870 to 1873 the "block signal" system came into general use throughout the country. The Pennsylvania Railroad Company equipped their entire line from New York to Philadelphia, and during the centennial year a thorough test of its practicability was made. Not a single accident can now be recalled due to the improper or inefficient operation of this system. The different systems now in use in this country are the Sykes or English block, the Union Switch and Signal Company's electro-pneumatic system, the Union Switch and Signal Company's clock-work system, the Black automatic mechanical block system, the Hall automatic electric system, and numerous others.

In the Switch and Signal Company's pneumatic electric block system, in operation for eight miles on the New Jersey Central Railroad, the New York Central, West Shore and others, the blocks vary in length from 1,000 to 1,800 feet and are operated on four parallel tracks. At the commencement of each block signal, posts are erected, one for each track. Each post carries two semaphores; the upper or home semaphore has a square end and is painted red, the lower or distance signal being fishtailed in shape and painted green. At night powerful lamps are used. When the upper semaphore projects at right angles from the post it indicates that a train is on the next block. Whenever it projects at an angle of 30 degrees, the lower one is also set at danger or caution. As the train leaves the block thus protected the upper signal falls, but the fishtail signal remains at caution until the next block is reached and the train is two blocks distant. Each semaphore is connected with a counterweight, so that when left to itself the counterpoise drops by gravity and sets it at danger. Directly below each post is a pneumatic cylinder with a single-acting piston, which is connected by means of a balance lever and connecting rod to the semaphore arms. As arranged, the piston which works with the cylinder is pressed upward to its highest position when the semaphore is set at danger, this, therefore, being the natural position of the whole apparatus.

At the top of the cylinder a valve is arranged which can be opened electrically, and which closes automatically by a spring. To this valve a pipe is connected which communicates with a supply of compressed air. Above the valve is an electro-magnet, the armature of which is connected to the valve stem. If a current of electricity is sent through the magnet, the valve will be opened, compressed air will be admitted above the piston, which will be depressed, and as it goes down will force the semaphore, in opposition to the counterpoise weight, into the "safety" position. The object to be attained, therefore, is that when a train is on the block in advance of a set of signals, it must,

automatically, cut off the current from both, so that they will be drawn into the "danger" position. When the train is on the next block, the current must again be permitted to pass through the upper semaphore magnet, forcing it into the "safety" position, but no current must be admitted to the lower semaphore magnet until the second block has been passed.

Another block system which has been quite extensively introduced on the roads of this country is known as the "Hall system." It was first used on the Eastern Railroad (now Boston and Maine) in 1871. In this system the signal is now operated on a closed circuit, running from the battery through the block track instrument, through the magnet of the signal instrument, through the points of the relay, through the relay magnets and back to the battery, thus completing a circuit which holds the signal to safety simply by the action of the current. By the momentary breaking of the circuit caused by the passage of a train over the closed spring track instrument, the magnets of the relay are demagnetized, the points are separated and the signal falls to "danger" by gravity from lack of force to sustain it in the "safety" position. It will also be seen that from any disturbing cause, such as the breaking or crossing of the line wire, the failure of the battery or any of the mechanical parts, the signal will immediately go to danger by the interruption of the circuit. After a signal has been set at danger it can not be restored until the train shall have operated the clear (open) track instrument at the end of the section. The clearing circuit runs from the battery through the open spring instrument, then through the relay magnets, back to the battery. On completing the circuit through the "clear track" instrument, the relay magnets are magnetized, the points of the relay are again brought in contact, the former circuit is therefore completed, and the signal again goes to "clear." If a switch on the main line is misplaced, a circuit is broken in a switch machine attached to the switch, which also causes the signal to fall to "danger." The signal instrument is certainly most simple in construction, consisting of a pair of electro-magnets, between the prolonged coils of which revolves an armature. To one wing of this armature is attached the disk, and to the other its counterweight rod, which, being lighter than the signal, allows of a gravity movement of the signal whenever the force holding it is withdrawn. In the "Hall track instrument" the piston, on being thrown up by depressing the lever, breaks or makes a circuit on the top plate. The piston is operated in an air chamber, which cushions the upward blow and also retards its fall, thus saving all wear to the apparatus.

Mr. Brangs also described the modern system of electric railways and the various applications of lighting, heating, etc., of railroad cars.

The Use of Kainit for Agricultural Purposes.

The Halberstadt chamber of commerce, in its last annual report, gives some interesting statistics as to the use of kainit in agriculture.

The consumption of this article rose in 1889 to 2,634,507 quintals, compared with 2,472,973 in 1888, distributed as follows:

Home consumption.....	1,503,417 quintals,	against 1,052,363 in 1888
Exportation.....	1,131,089 "	" 1,420,605 in 1888

The United States have imported:

1888.....	914,350 quintals.
1889.....	716,700 "

The high freightage rates of the commencement of the year 1889, telling severely on the sale price of contracts for the year, have had a deleterious influence on exportation to the United States, and have caused a retrogression in place of the usual advance.

The increasing favor with which rational fertilization is being regarded has already had a good effect on agriculture, and this practice is ever being more widely adopted by neighboring states. Among these Sweden, Belgium, and France rank first as consumers of kainit.

Kainit is a mineral deposit containing potash, found at Stassfurt, Germany. A good quality contains 12 to 14 per cent of potash in the form of the sulphate K_2SO_4 .

Liebreich's Remedy for Tuberculosis.

Cantharidin is Professor Liebreich's remedy for tuberculosis, administered by hypodermic injections. The solution used is made as follows: 0.2 gm. cantharidin and 0.4 gm. potassium hydrate (0.3 gm. sodium hydrate) are warmed with 20 cc. water in a water bath until solution is effected; this solution is diluted with warm water and after cooling made up to one liter. Cantharidin, $C_{10}H_{12}O_4$, is the anhydride of cantharidic acid, $H_2C_{10}H_{12}O_6$, and in the above solution exists as cantharidate of potassium (or sodium), $C_{10}H_{12}K_2O_6$. The initial dose represents 0.1 mg. cantharidin, which is gradually increased to 0.6 mg.; the remedy as yet has only been used in affections of the larynx and is easily tolerated by the system. Professor Fränkel, upon whose patients the experiments were made, emphasizes the statement that the bacilli become scarcer and thinner under the treatment. Its action depends upon inducing a serous transudation in the diseased parts.—*Apotheker Ztg.*, 1891, 122.

A Trade Mark Case.

Supreme Court of the United States. The Brown Chemical Company, makers of Brown's iron bitters, vs. Meyer et al., makers of Brown's iron tonic. Decided April 6, 1891.

Appeal from the Circuit Court of the United States for the Eastern District of Missouri.

It is well established that words which are merely descriptive of the character, qualities, or composition of an article, or of the place where it is manufactured or produced, cannot be monopolized as a trade mark.

An ordinary surname cannot be appropriated by any one person as against others of the same name, who are using it for a legitimate purpose.

A trade mark with the words 'Brown's Iron Tonic' upon it does not infringe another bearing the words 'Brown's Iron Bitters,' when the cartons and bottles in which the two medicines were offered to the public were wholly different in size, color, and appearance, and the labels and wrappers were correspondingly different.

The law does not visit with its reprobation a fair competition in trade; its tendency is rather to discourage monopolies, except where protected by statute, and to build up new enterprises from which the public is likely to derive a benefit. It is only when such competition is based upon fraud that the law will interfere.

The right of the owner of a trade mark to assign the same to a partner or to a successor in business, as an incident to its good will, affirmed.

In *Holloway vs. Holloway* (13 Beav., 209), Thomas Holloway had for many years made and sold pills and ointments under the label 'Holloway's Pills and Ointments.' His brother, Henry Holloway, subsequently manufactured pills and ointment with the same designation. The pill boxes and pots (of ointment) of the latter were similar in form to, and were proved to have been copied from, those of the former. The Master of the Rolls in granting the injunction said:

"The defendant's name being Holloway, he has a right to constitute himself a vendor of Holloway's pills and ointment, and I do not intend to say anything tending to abridge any such right. But he has no right to do so with such additions to his own name as to deceive the public, and make them believe that he is selling the plaintiff's pills and ointments. The evidence in this case clearly proves that pills and ointments have been sold by the defendant, marked in such a manner that persons have purchased them of the defendant, believing that they were buying goods of the plaintiff."

The principle of this case was approved by this court in the case of *McLean vs. Fleming* (96 U. S., 245), in which a person was enjoined from using his own name, in connection with certain pills, upon the ground that they were put up in such form that purchasers exercising ordinary caution were likely to be misled into buying the article as that of the plaintiff. These cases obviously apply only where the defendant adds to his own name imitations of the plaintiff's labels, boxes, or packages, and thereby induces the public to believe that his goods are those of the plaintiff. A man's name is his own property, and he has the same right to its use and enjoyment as he has to that of any other species of property. If such use be a reasonable, honest, and fair exercise of such right, he is no more liable for the incidental damage he may do a rival in trade than he would be for injury to his neighbor's property by the smoke issuing from his chimney, or for the fall of his neighbor's house by reason of necessary excavations upon his own land. These and similar instances are cases of *damnum absque injuria*. In the present case, if the words are not in themselves a trade mark, they are not made a monopoly by the addition of the proprietor's name, provided, of course, the defendant be legally entitled to make use of the same name as connected with his preparations.

The theory of a trade mark proper then being untenable, this case resolves itself into the question whether the defendants have, by means of simulating the name of plaintiff's preparation, putting up their own medicine in bottles or packages bearing a close resemblance to those of plaintiff, or by the use of misleading labels or colors, endeavored to palm off their goods as those of the plaintiff. The law upon this subject is considered in the recent case of *Lawrence Mfg. Co. vs. Tennessee Mfg. Co.* (138 U. S., 537). The law does not visit with its reprobation a fair competition in trade; its tendency is rather to discourage monopolies, except where protected by statute, and to build up new enterprises from which the public is likely to derive a benefit. If one person can by superior energy, by more extensive advertising, by selling a better or more attractive article, outbid another in popular favor, he has a perfect right to do so, nor is this right impaired by an open declaration of his intention to compete with the other in the market. In this case, the usual indicia of fraud are lacking. Not only do defendant's bottles differ in size and shape from those of the plaintiff, but their labels and cartons are so dissimilar in color, design, and detail that no intelligent person would be likely to purchase either under the impression that he was purchasing the other. There

are certain resemblances in the prescriptions and instructions for the use of the respective preparations, but no greater than would be naturally expected in two medicinal compounds, the general object of which is the same.

BATH LIFT FOR THE SICK AND PARALYZED.

Dr. S. A. K. Strahan has described in the *London Lancet* a bath lift for the use of the sick. Our engraving shows the operation of the device, which the doctor indorses in the following words:

"This bath lift, to which I would call the attention of the profession, was designed with a double object: (1) to prevent those accidents which from time to time occur during the bathing of the paralyzed and otherwise helpless, and make the bathing of the most helpless patient by a single nurse at once possible and safe; and (2) with a view to the better carrying out of prolonged immersion—a mode of treatment frequently resorted to at present in various diseased conditions. The accompanying diagram gives a very good idea of the apparatus. It consists of a light, rigid frame supporting a strong net, and raised at the end to form a pillow. This net can be elevated to the level of the top of the bath and lowered at will by means of the handles attached to the revolving bar. A rack-and-pinion arrangement makes it impossible for the net to 'go down with a run,' and the bent crossbars (shown through the net in the engraving) keep the net three inches from the bottom of the bath tub when at its lowest. In use, when the patient is brought alongside the bath, the net is raised, the patient comfortably placed thereon, and gently lowered into the water prepared for him beneath.

**BATH LIFT FOR THE SICK AND PARALYZED.**

Bathing over, the net is raised again to the level of the top of the bath, the patient rubbed dry, and prepared for bed. Nurses and others who have single-handed attempted to lift a helpless person from the bottom of a bath will be able to appreciate the usefulness of this contrivance. The advantages of the lift in cases of prolonged immersion are many, not the least of which is that the patient is supported in mid-water, his weight being equally distributed, and no portion of his body being allowed to come in contact with the bottom of the tub. Should the patient be delirious or maniacal, the limbs can easily be secured to the net, and all dangerous struggling is obviated. There is sufficient space between the edge of the net and the side of the bath to prevent injury to the fingers should the bather grasp the rods. The apparatus can be made to fit any size or shape of bath, and can be fixed to an ordinary bath in a few minutes. It is also to be noticed that the net and revolving bar can be removed in a moment, so that in a private house the bath may not be monopolized by the invalid. The machine should, I think, prove of great value both in the private house and in the public institution."

A Week without Sleep for a Wager.

At noon on Monday, March 30, in Detroit, Mich., six men entered into a competition to test their ability to do without sleep for a period of 168 hours, or a full week. Four of the contestants had dropped out before Thursday, the two remaining being Townsend, a six day walker, and Cunningham, a ship carpenter. Townsend succumbed on Sunday evening, and the manner of his failure, and the great difficulty experienced by Cunningham in keeping up his vigil for the full period, afford a vivid illustration of the exquisite torture which can be inflicted by forcibly depriving one of sleep. At about 10 o'clock Townsend began to weaken; he walked like a man asleep and reeled about the floor. An hour later he complained that the floor had all at once grown very steep and he could not keep

on climbing. He stuck to his task, however, until midnight, when he leaned against the wall for a moment's rest. He was so tired that he fell to the floor. The shock roused him, and he begged the watchman to keep him awake, but it could not be done. Again he reeled about the floor for a few minutes and then with tears in his eyes he said it was all up with him. He could not stand it any longer—he must lie down a minute. Down on the floor he threw himself, and before the watchman could get to him, a full-fledged snore was heard, and he was out of the race.

Cunningham was left alone with a 12 hours' vigil before him. He walked, he sang, he danced and shouted and tried every means he could devise to ward off sleep. Hundreds of people clustered about him to see the last hour pass. "Why did you stop the clock," he almost screamed as the minutes dragged by. At length it was over, and he was conducted to the theater stage and introduced, but before the introduction was over, he was sound asleep. Cunningham lost eight pounds and Townsend six in the match. The men were allowed to sleep in 15 minute naps at the conclusion of their several vigils, and were said to have suffered no permanent ill from their novel contest.

Liquid Fuel for Firing Porcelain.

The large porcelain factories at Limoges have been for a long time studying the question of reducing the price of fuel, the existence of the famous industry being threatened by the excessive cost of firing china. While in Bohemia this is not more than \$2 per ton, and in England \$2.60, at Limoges the cost was \$6.90. In order to compete against this immense advantage, wages were reduced to the lowest minimum, and still the manufacturers, in many cases, lost money. The coal that is employed is necessarily costly, as a smokeless, long flame variety is required. Many of the factories burn wood only, as that produces a purer white than the very best kinds of coal. Wood, however, is dearer than coal, and is consequently only used in firing the muffles and in the finest grades of porcelain. Under these circumstances one of the most progressive houses in Limoges was induced to employ petroleum or residuum oil as a fuel. To accomplish this an American firm using the Wright burner was requested to come and make a trial with the fuel. The results were far better than anticipated. No gases or smoke in any way discolored the china, which came from the kiln much whiter and in better condition than when it is fired with the best of wood. In the muffles there was a most decided advantage. The delicate colors, which show at once the presence of the slightest quantity of gas, were perfect. This new discovery, according to a recent consular report, promises to revolutionize the whole porcelain industry. It is estimated that by employing these oils there will be a reduction of about 15 per cent or 20 per cent in the making of china. The only question now is the present classification of residuum oils, as the present duty on petroleum (120 francs per ton) is prohibitive, but strong pressures are being brought to bear on the government now to have fuel oils classified as fuel, which pays only 1'30 francs per ton.

The Inventors' National Association.

Referring to the organization of the National Association of Inventors and Manufacturers, an outcome of the recent patent centennial celebration, the *Electrical Review* thinks every inventor should take a hand in this matter. The immediate work to which the organization should address its energies should be, first, to cover with its membership every inventor of note in the country, and their concentrated effort should be directed upon Congress to relieve the present congestion in the Patent Office. The Interior Department and Land Office, which have pushed themselves into the building paid for out of the patent fund for the use of the Patent Office, should be ignominiously bounced and Congress should be made to provide them with quarters elsewhere.

While these squatters are grandly occupying the larger part of the building with one desk to two rooms, the Patent Office is literary killing its corps by filling each room with from six to ten clerks and the necessary office paraphernalia. A large amount of sickness and a number of deaths are directly attributable to this cause. All this is hard on the inventor. His cases lie in the examiners' rooms awaiting action. A reduced and insufficient complement of examiners prevents early examinations, danger is invited of rival applications being filed and of expensive interference contests arising.

The association will find work to do in combating a growing opposition to patents among farmers; it is perfectly clear that those offering such opposition do not know on which side their bread is buttered. As was well said by several of the distinguished speakers at Washington recently, there is no other factor of our great national prosperity so large as the fruits of invention. An important object to be attained is the establishment of more liberal international patent laws. We are gradually drifting toward that, but this association can expedite matters by showing the State Department what is needed and how to get it.