

Recent American and Foreign Patents.

Improved Rotary Steam Engine.

William Cray, New York city.—This invention has for its object to furnish an improved rotary steam engine, which shall be so constructed as to relieve the shaft from all side pressure, and thus diminish the friction and consequent wear. The cylinder is made elliptical in form, and to its ends are secured the heads in the ordinary manner. To the shaft within the cylinder is secured a cylindrical drum of such a size as to revolve in the said cylinder, a space being left upon the opposite sides of the drum for the steam. In the opposite sides of the drum are formed deep longitudinal grooves to receive the valves, upon the inner part of the end edges of which are formed pivots, which enter elliptical guide grooves formed in the inner surfaces of the heads, which are so formed as to hold the outer edges of the pistons out close against the inner surface of the cylinder. Two inlet ports are used, formed in the opposite sides of the cylinder and provided with slide valves. Said valves may move together, being connected by a yoke with which is connected one end of a lever, which is pivoted to a bracket attached to the cylinder head. The inner end of the lever projects into such a position as to rest upon a cam wheel attached to the shaft against which it is held by a spring. By this construction the steam will be received upon the opposite sides of the cylinder, so as to balance the engine and prevent side pressure.

Improved Doll Joint.

Joel A. H. Ellis, Springfield, Vt., assignor to the Coöperative Manufacturing Company, of same place.—This invention relates to the manufacture of dolls, and to the class of dolls which are usually made of wood, with joints for the legs and arms; and it consists in the manner of forming the joints and securing the requisite friction thereto. A slot and tenon are fastened together by the pivot pin. The tenon is divided by a saw kerf. The double tenon is designed to fit the slot a little full, and be sprung together slightly, when the tenon enters the slot, thus producing the requisite friction, and preventing any binding or looseness by the shrinking and swelling of the wood at any time. The shoulder piece is cut or slit at right angles, and fitted into a round socket having a groove to receive a pin, so that the arm will be securely held, while it will freely revolve. The socket is a little smaller at the back end, so that the shoulder piece is compressed, as represented, which secures at this point the required degree of friction. The arm is attached to the shoulder piece in the manner already described.

Improved Mail Bag.

Thomas J. Hardway, Macon, Ga.—This invention is an improvement in the class of mail bags provided at the mouth with hinged bars or plates adapted to be locked together. Four bars are hinged together so as to form a rectangular and nearly square opening, and a locking piece is attached to one of the bars near the joint. The said piece may be conveniently used as a handle for opening and closing the bag. When adjusted for locking it covers the contiguous and middle joint of the hinged bars, and thus imparts a strength and rigidity highly necessary to security of the contents of the bag. The piece is also adapted by its position to receive a label relating to contents, destination, etc., of the bag.

Improved Detachable Boot and Shoe Tip.

Michael R. Hanley, Providence, R. I.—The object of this invention is to so construct a metallic tip that it can be applied not only to shoes or boots in process of manufacture, but to those already completed or in use; and it consists in a tip having lips or teeth turned inward from its lower edge, and hook pins at each end.

DECISIONS OF THE COURTS.

United States Circuit Court—Southern District of New York.

REFRIGERATOR PATENT.—GEO. C. ROBERTS vs. WM. F. EYER. BLATCHFORD, Judge.

This suit is brought on reissued letters patent, granted April 21, 1857, to D. W. C. Sanford, for an "improvement in refrigerators," the original patent having been granted to Sanford, as inventor, November 13, 1855, and the patent, as reissued, having been extended October 20, 1869, for seven years from the 13th of November, 1869.

It is apparent, from the language of the specification of the original patent, that Sanford, when he applied for his original patent, believed that he was the first inventor of any arrangement in a refrigerator whereby there was effected a complete and continual rotation, purification, desiccation, and refrigeration of the contents of a closed refrigerator. He, therefore, claimed, in that specification, the use, in a closed refrigerator, of an endless passage, furnished with walls, shelves, and ice receptacle, so placed and constructed as to compel the perpetual rotation or circulation, throughout the entire apartment or apartments, of the whole of the air contained therein, with the provision described for the discharge of the water of the melted ice, which was being constructed as set forth.

The defendant has a refrigerating room which he uses in his business as a butcher, and which is alleged to infringe the plaintiff's patent. The room is eight feet three inches long, six feet two inches wide, and six feet high. The ice box, at one side and in one corner, elevated, is five feet ten and a half inches long, on the long side of the room, three feet six and a half inches high, and three feet six and a half inches wide. On the two sides of this ice box which are toward the room, there is a space between the top of each of such sides and the ceiling of the room, of eight inches in height and the length of such two sides, for the ingress of the air of the room into the ice box. A door from without opens into the ice box, by which to put ice in. Another door opens into the room from without. The ice in the ice box rests on a wooden rack on its bottom, which affords a free passage for air. Below the rack is a cold air chamber, the top of which is the bottom of the rack, and the bottom of which is formed by two inclines, which slope downward and toward each other, and toward a center blue midway of the width of the ice box, so as to leave a central opening, five feet eight inches long and two and a quarter inches wide, through which the cold air finds its way downward. The water from the melted ice falls on these inclines, and runs down them and through this central opening, where it is caught by a trough five feet ten inches long and six and a half inches wide, and set three and a half inches below such central opening. This trough is one foot eight inches above the floor of the room. There are no shelves below the central opening, but there is a rack on the floor, on which meat is placed. The water from the melted ice falls on these shelves, and is caught by a trough placed in the room warm air, which then ascends, and passes over the tops of the sides of the ice box, and thus around the partition, and into contact with the ice, and is thus cooled, and dried, and purified, and descends through the open bottom of the ice box, and then through the central opening, and, descending further, according to the law governing the action of cooler air, displaces the warmer air, and pushes such warmer air before it, and upward, around the partition, and so a rotation or circulation of the contained air in the closed room is established, which goes on so long as any part of the contained air is warmer than any other part of it. The cooled air can fall directly down upon such articles as are placed under the central opening, without being interfered with by, and without interfering with, the disposition of the water from the melted ice, and such water is carried off and not allowed to drip into the room. The modes of operation of the combinations found in the defendant's room, are the same as the modes of operation of the like combinations found in the claims of the plaintiff's patent.

The defendant principally relied on in this case is that, as to both of the combinations in the claims of the plaintiff's patent, he was anticipated by Axel S. Lyman, in invention and structures previously made by Lyman, and that the defendant, in using a refrigerating room constructed and operating as above described, has done no more than he was fully instructed to do by such structures of Lyman.

The earliest date sought to be assigned to Sanford's invention is the summer of 1855. It is in evidence that Lyman, on the 20th of August, 1852, filed in the Patent Office, a caveat for "improvements in railroad freight cars, for transporting fresh meats, and other articles, which require a very low temperature and pure air." Such caveat contains a description, and drawings refer to therein. The object of the arrangement is stated, in the caveat, to be to transport dressed meats. The walls, sides, and the top of the car are made double, and filled with a bad conducting material, the car is closed, and the air in it is reduced in temperature by passing it, in rotation and circulation, through ice, or other cooling material, contained in a box in the car, or through tubes immersed therein. A fan driven by a cord from the axle of the car drives the air down through the cooler. After the air leaves the bottom of the cooler, it passes through a box containing disinfesting material, and is set in the caveat, to be preserved cool, pure, and dry by being passed frequently through the cooler and the disinfesting material, so as to keep the meats from putrefying; the drying of the meats being deposited on the cold surface, and falling down, and being caught in a pan below the bottom of the cooler, whence it is carried off, by a tube, to the outside of the car. The caveat states that Lyman proposed to claim the providing for a constant circulation of air from the car, through the cooler, and through the disinfesting box, back into the car, by means of a fan, or some other similar mechanical arrangement; the drying of the air, by the precipitation and condensation of the water held by the solution, by passing it through the cooler; the cooling of the air through the same process; and the construction of a cooling house, or refrigerator, in the manner above described, except that there would be other arrangements for driving the fan.

Between the date of this caveat and the year 1855, Lyman constructed, and put into successful operation, refrigerating cars and stationary refrigerators, embodying the principle set forth in such caveat, and constructed

substantially on the plan therein stated, the cars being arranged with fans, to assist in the circulation of air, and the stationary refrigerators having no fans, but depending for such circulation on the law governing the movements of cooler and warmer airs, free to communicate with each other through an ice box open above and below. All these structures embodied the combinations and modes of operation before stated as found, in common, in the defendant's refrigerating room and in the plaintiff's structure. In April and May, 1854, Lyman caused to be constructed for one Tilton, a closed refrigerator, which was put in use by him in Franklin market, New York, during the summer of 1854, and was used by Tilton there for several years afterward. It embodied the same principles of construction and mode of operation as the Syracuse refrigerator. It had a descending conduit five or six inches wide and about three and a half feet long, and the lower end of which was about sixteen inches above the floor. It was used to preserve poultry, which was placed on three shelves. One of the shelves extended under the conduit. This refrigerator stood in the open market for several years after the summer of 1854. Lyman personally showed it to a great many persons, and explained its internal arrangements, and its principle and mode of operation.

In the summer of 1854, Lyman caused to be built nine closed refrigerators, for domestic use, which were like the Syracuse refrigerator in construction and mode of operation, except that they had no shelf below the cold air opening, but had a space or chamber there for articles to be refrigerated. These refrigerators were built at Mount Vernon, Westchester county, N. Y. Lyman used one of them in his family, for a dozen years or more from and after July, 1854. Some of the others were sent to New York and disposed of to various persons, and some were used in Mount Vernon.

Between 1852 and 1855 at least a dozen closed refrigerators, of like construction, were made at the Novelty Iron Works, in the city of New York, according to plans furnished by Lyman. In some of them the conduit extended down only one and one half inch below the cold air chamber under the ice grate, and in others it extended down to within twelve or sixteen inches of the bottom of the refrigerator. These refrigerators were delivered to various parties for whom they were made. Of the above number, eight or ten were constructed at such works during the year 1854, and one of those, made there by one Hadden, for his own use, is still in existence, and has been put in evidence and produced for the inspection of the Court. This refrigerator was used by Hadden in his family for four or five years. It was and is, in construction, like the Syracuse refrigerator before described, except that it has no shelf below the cold air opening. In using it, however, Hadden placed on the floor, in and under the descending current of cold air, articles which he desired to keep the coolest.

On the 21st of September, 1854, Lyman filed, in the Patent Office, an application for a patent, for an "improved mode of cooling, drying, and disinfecting air for ventilators and refrigerators."

The drawings represent a refrigerator constructed substantially like the Syracuse refrigerator, and the Hadden refrigerator before mentioned. There is nothing in the patent of 1856, to Lyman, that is not found fully developed in his application of September, 1854. In view of that application, the patent to Sanford, of November, 1855, ought not to have been granted. The evidence shows that Lyman was the first inventor, as between him and Sanford, of what is claimed in Lyman's application of 1854, and of what is claimed in Sanford's patent of 1856, and of what is claimed in Lyman's patent of 1856.

So, too, everything that is claimed in the claims of Sanford's reissue of 1869, and which has been heretofore explained, is found in Lyman's application of 1854.

The conclusion at which I have arrived, after a careful consideration of all the evidence and of the arguments of counsel, is that the Sanford reissue is void for want of novelty.

As to the questions made respecting the want of notice, in the answer, as to some matters put in evidence, I think, that, in any view, the case is a proper one to allow the amendments to the answer, which were moved for at the hearing, on notice, *quæ re protulit*, as of the time the answer was filed. The bill is dismissed, with costs.

Barrett & Redfield and Thomas A. Jencks for complainant. F. A. Betts, J. Gutman, Jr., and J. N. Piper for defendant.

Inventions Patented in England by Americans.

- (Compiled from the Commissioners of Patents' Journal.) From May 16 to May 29, 1873, inclusive. AIR MOTOR.—H. Bushnell et al., New Haven, Conn. ANCHOR.—C. A. Chamberlin, Pittsburgh, Pa. BALE FASTENING.—E. J. Beard, St. Louis, Mo. BANDSAW MACHINE.—D. B. Whitney, Winchendon, Mass. BOOTS, ETC.—T. Tucker, Oakland, Cal. CARRIAGE WHEEL.—N. G. Old (of Fort Wayne, Ind.), London, Eng. CLOTHES WRINGER.—C. E. Hayes, Boston, Mass. ENGINE, ETC.—R. Eickemeyer, Yonkers, N. Y. GENERATING STEAM.—J. H. Mills, Boston, Mass. HARVESTER.—J. F. Gordon, Rochester, N. Y. HOSE PIPE.—T. A. Dodge, Cambridge, Mass. LIFE RAFT.—S. W. Torrey (of New York city), London, Eng. MAKING GAS, ETC.—W. H. Spencer, New York city. OIL BURNING STOVE.—L. E. Truesdell, Warren, Mass. PRESERVING MEAT, ETC.—G. W. Scollay (of St. Louis, Mo.), New York city. PURIFYING GAS, ETC.—E. Kavanaugh, Peabody, Mass. RAILWAY BARS, ETC.—J. Henderson, New York city. SEWING MACHINE.—W. P. Brock, Philadelphia, Pa. SPEED INDICATOR.—J. W. Osborne, Washington, D. C. STUFFING BOX PACKING.—J. Glandine et al., Philadelphia, Pa. UNITING METAL BANDS, ETC.—C. O. Johnson, New Orleans, La. VAPOR OF CARBON.—W. Wells, Salem, Mass. VEHICLE WHEEL.—A. L. Blackman, Cross Plains, Tenn.

Value of Patents, AND HOW TO OBTAIN THEM. Practical Hints to Inventors.

PROBABLY no investment of a small sum of money brings a greater return than the expense incurred in obtaining a patent even when the invention is but a small one. Larger inventions are found to pay correspondingly well. The names of Blanchard, Morse, Bigelow, Colt, Ericsson, Howe, McCormick, Hoe, and others, who have amassed immense fortunes from their inventions, are well known. And there are thousands of others who have realized large sums from their patents.

More than FIFTY THOUSAND inventors have availed themselves of the services of MUNN & Co. during the TWENTY-SIX years they have acted as solicitors and Publishers of the SCIENTIFIC AMERICAN. They stand at the head in this class of business; and their large corps of assistants, mostly selected from the ranks of the Patent Office; men capable of rendering the best service to the inventor, from the experience practically obtained while examiners in the Patent Office; enables MUNN & Co. to do everything appertaining to patents BETTER and CHEAPER than any other reliable agency.

HOW TO OBTAIN Patents

This is the closing inquiry in nearly every letter, describing some invention which comes to this office. A positive answer can only be had by presenting a complete application for a patent to the Commissioner of Patents. An application consists of a Model Drawings, Petition, Oath, and full Specification. Various official rules and formalities must so be observed. The efforts of the inventor to do all this business himself are generally without success. After great perplexity and delay, he is usually glad to seek the aid of persons experienced in patent business, and have all the work done over again. The best plan is to solicit proper advice at the beginning. If the parties consulted are honorable men, the inventor may safely confide his ideas to them; they will advise whether the improvement is probably patentable, and will give him all the directions needful to protect his rights.

How Can I Best Secure My Invention?

This is an inquiry which one inventor naturally asks another, who has had some experience in obtaining patents. His answer generally is as follows, and correct: Construct a neat model, not over a foot in any dimension—smaller if possible—and send by express, prepaid, addressed to MUNN & Co., 37 Park Row, New York, together with a description of its operation and merits. On receipt thereof, they will examine the invention carefully, and advise you as to its patentability, free of charge. Or, if you have not time, or the means at hand, to construct a model, make as good a pen and ink sketch of the improvement as possible and send by mail. An answer as to the prospect of a patent will be received, usually, by return of mail. It is sometimes

best to have a search made at the Patent Office, such a measure often saves the cost of an application for a patent.

Preliminary Examination.

In order to have such search, make out a written description of the invention, in your own words, and a pencil, or pen and ink, sketch. Send these with the fee of \$5, by mail, addressed to MUNN & Co., 37 Park Row, and in due time you will receive an acknowledgment thereof, followed by a written report in regard to the patentability of your improvement. This special search is made with great care, among the models and patents at Washington, to ascertain whether the improvement presented is patentable.

Rejected Cases.

Rejected cases, or defective papers, remodeled for parties who have made applications for themselves, or through other agents. Terms moderate. Address MUNN & Co., stating particulars.

To Make an Application for a Patent.

The applicant for a patent should furnish a model of his invention if susceptible of one, although sometimes it may be dispensed with; or, if the invention be a chemical production, he must furnish samples of the ingredients of which his composition consists. These should be securely packed, the inventor's name marked on them, and sent by express, prepaid. Small models, from a distance, can often be sent cheaper by mail. The safest way to remit money is by a draft, or postal order, on New York, payable to the order of MUNN & Co. Persons who live in remote parts of the country can usually purchase drafts from their merchants on their New York correspondents.

Caveats.

Persons desiring to file a caveat can have the papers prepared in the shortest time, by sending a sketch and description of the invention. The Government fee for a caveat is \$10. A pamphlet of advice regarding applications for patents and caveats is furnished gratis, on application by mail. Address MUNN & Co., 37 Park Row, New York.

Reissues.

A reissue is granted to the original patentee, his heirs, or the assignees of the entire interest, when, by reason of an insufficient or defective specification, the original patent is invalid, provided the error has arisen from inadvertence, accident, or mistake, without any fraudulent or deceptive intention.

A patentee may, at his option, have in his reissue a separate patent for each distinct part of the invention comprehended in his original application by paying the required fee in each case, and complying with the other requirements of the law, as in original applications. Address MUNN & Co., 37 Park Row, for full particulars.

Design Patents.

Foreign designers and manufacturers, who send goods to this country may secure patents here upon their new patterns, and thus prevent others from fabricating or selling the same goods in this market.

A patent for a design may be granted to any person, whether citizen or alien, for any new and original design for a manufacture, bust, statue, alto relievo, or bas relief; any new and original design for the printing of woolen, silk, cotton, or other fabrics; any new and original impression, ornament, pattern, print, or picture, to be printed, painted, cast, or otherwise placed on or worked into any article of manufacture.

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Foreign Patents.

The population of Great Britain is 31,000,000; of France, 37,000,000; Belgium, 5,000,000; Austria, 36,000,000; Prussia, 40,000,000; and Russia, 70,000,000. Patents may be secured by American citizens in all of these countries. Now is the time, while business is dull at home, to take advantage of these immense foreign fields. Mechanical improvements of all kinds are always in demand in Europe. There will never be a better time than the present to take patents abroad. We have reliable business connections with the principal capitals of Europe. A large share of all the patents secured in foreign countries by Americans are obtained through our Agency. Address MUNN & Co., 37 Park Row, New York. Circulars with full information on foreign patents, furnished free.

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Did patentees realize the fact that their inventions are likely to be more productive of profit during the seven years of extension than the first full term for which their patents were granted, we think more would avail themselves of the extension privilege. Patents granted prior to 1861 may be extended for seven years, for the benefit of the inventor, or of his heirs in case of the decease of the former, by due application to the Patent Office, ninety days before the termination of the patent. The extended time inures to the benefit of the inventor, the assignees under the first term having no rights under the extension, except by special agreement. The Government fee for an extension is \$100, and it is necessary that good professional service be obtained to conduct the business before the Patent Office. Full information as to extensions may be had by addressing MUNN & Co., 37 Park Row.

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On the first of September, 1872, the new patent law of Canada went into force, and patents are now granted to citizens of the United States on the same favorable terms as to citizens of the Dominion.

In order to apply for a patent in Canada, the applicant must furnish a model, specification and duplicate drawings, substantially the same as in applying for an American patent.

The patent may be taken out either for five years (government fee \$20) or for ten years (government fee \$40) or for fifteen years (government fee \$60). The five and ten year patents may be extended to the term of fifteen years. The formalities for extension are simple and not expensive.

American inventions, even if already patented in this country, can be patented in Canada provided the American patent is not more than one year old.

All persons who desire to take out patents in Canada are requested to communicate with MUNN & Co., 37 Park Row, N. Y., who will give prompt attention to the business and furnish full instruction.

Copies of Patents.

Persons desiring any patent issued from 1836 to November 26, 1867, can be supplied with official copies at a reasonable cost, the price depending upon the extent of drawings and length of specification.

Any patent issued since November 27, 1867, at which time the Patent Office commenced printing the drawings and specifications, may be had by remitting to this office \$1.

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