

Improved Double Acting Force Pump.

John P. Flanders, Vergennes, assignor to himself, Eli B. Hayes, of same place, and H. M. Mitchell, Burlington, Vt.—The cylinders are arranged on each side of a wide bed frame, and between them suction pipes are arranged, rising vertically from the well and connected to the cylinders by horizontal branches at the upper ends above the check valves. Four discharge pipes rise vertically a short distance above the cylinders, and there continue by curves above the check valves into a discharge box at the bottom, where the check valves are arranged to prevent the back flow. These pipes support the discharge box and the air chamber. For packing the pistons, the barrels in which they work are divided in longitudinal parts with lap joints at the edges, so that they can contract and expand a little without opening seams for the escape of water. A small annular channel surrounds the barrel, in which is maintained a high degree of pressure by water admitted through a pipe connection. To hold the barrel in position and allow them to be free to expand and contract, notches are formed in the shell in the cylinder, and lugs in the barrels, which project into the notches and hold the barrels against the end motion.

Improved Table Dish Stand.

Florian Grosjean, New York city.—The essential feature of the invention is a stand or tray for dishes, of which the top or plate is composed of metal with a porcelain cover or enamel, the enamel being to conceal the iron or give it a fine finish, and form the ground work for fine picture ornamentation by the decalcomanic or other process.

Improved Stop Valve.

George W. Eddy, Waterford, N. Y.—This invention relates to that class of stop valves in which two disks are arranged to move forward and backward at right angles to the water channel in a chamber through which the channel passes at openings on opposite sides where the seats are formed for the disks, and on which they are caused to press tightly when moved upon them.

Improved Egg Carrier.

John A. Beam, California, Mo.—This invention consists of a strong wood box in ten compartments, or tiers of paper cells, adapted to hold an egg upright, on the large end, the cells being formed of a paper cylinder and pasted or otherwise fastened together at the sides. Between each tier of the cells, also between the upper and lower tiers and the box sides, are cushions to soften the shocks. The rows of cells along the sides of each tier are protected from the shocks against the side walls by springs. The sides of the box are provided with projections, which prevent the box from resting on them, so that the eggs are secured against lying on the sides while in transit. Some of the end projections of the case constitute handles for handling it.

Improved Horse Power.

William Gillilan, Speier, Minn.—The object of this invention is to furnish a horse power for thrashing grain and other purposes. The cogs of a bed wheel are on the upper side and engage with vertical internal and external gear wheels, which are on a horizontal cross shaft. The power is applied, to a revolving frame attached to the cross shaft by stands, by means of levers. Arms connect the rim of the frame with the central cap. Traverse wheels attached to the frame revolve through slots in the rim of the frame and rest upon the top of the bed wheel, and thus prevent friction. The internal part of the vertical wheels engage with other wheels. The exterior cogs of the vertical wheel engage with the cogs of the bed wheel, and thus impart motion to the central vertical shaft.

Improved Washing Machine.

Moses L. Hawks, Kinderhook, Mich.—This invention has for its object to furnish an improved washing machine of that class in which the washing is done by passing the clothes back and forth between rollers, and which shall wash the clothes quickly and thoroughly and without injuring them, and without becoming clogged. A large upper roller is corrugated longitudinally, and to it is attached the crank by which the machine is operated. Four small rollers are placed beneath the large roller. By suitable construction, as the clothes pass in, the upper roller and outer small rollers yield so as to accommodate themselves to the thickness of the clothes. As the latter pass out, the outer small rollers upon that side yield, thus preventing clogging. By proper devices the machine is held in the tub in which it is desired to operate.

Improved Washing Machine.

Jacob Sheffer, Deselm, Ill.—In using the machine, the clothes are placed upon a false bottom around a rotating vertical cylinder. The handle is grasped in the left hand to apply pressure, and a vertical roller, held between pivoted bars, to which the handle is attached is revolved with the right hand by means of the crank. The cylinder holds the clothes out so that they will be in proper position to be operated upon by the roller, the flange of the said cylinder pushing the lower part of the clothes in beneath the mass, so that they will be continuously turning over. The outer part of the bottom, as it is rotated by the roller, moves faster than the inner part, so that the clothes will be rubbed as well as pressed.

Improved Last Block Fastener.

David Huard, Asnland, Wis.—This invention consists of a clasp-like fastener, pivoted to the main block of the last, which closes over the other block in connection with pin fastenings of the same.

Improved Water Elevator.

Sylvester Bennett, New Orleans, La.—This invention consists of a stationary case in the form of a hollow inverted truncated cone, inside of which is a revolving inverted cone with one or more spiral flanges extending from bottom to top, and apparatus for revolving the inner cone for raising water short distances in large quantities, for draining purposes and the like.

Improved Seed Planter.

William J. Saffery, Bremen, Ohio.—This invention consists in combining a furrow opener, a seed dropper, a rolling coverer, and a guano or manure dropper, so that, between the seed and the guano, there will always be a small layer of fine dirt to prevent the destruction of the vitality of the seed.

Improved Pump.

Charlie D. Rathbone, Belpre, Ohio.—This invention consists of a novel construction and mode of applying a bush or lining of glass or other hard and durable wearing substance in the pump cylinder or stock to sustain the wear of the sucker or pump barrel.

Improved Bed Bottom.

Jonathan V. Taylor, La Cygne, Kansas.—This invention consists of two pairs of bars about half as long as the bed, fixed at one end on a transverse pivot at the middle of the bed, one pair extending to the head and the other to the foot, and connecting with cross bars thereat. One cross bar at the head and one at the foot are each connected by several tension straps of strong flexible material arranged above the pivot, and sufficiently short to support the arms and cross bars, and any weight that may be placed on them above the horizontal plane of the pivot. At each end there is a stop bolt which limits the height to which the end may be raised, and thus prevents the other end from falling too low. In connection with the above are the arms provided with springs at the pivot to increase the range of the springing action of the bottom.

Improved Floor.

Levi S. Wood, Marion, Iowa.—The object of this invention is to provide means for strengthening floors, roofs, etc., and it consists in truss rods passed through the joists of the floor or rafters of a roof in combination with bridge blocks fitted between the joists on one or both sides of each rod. Nuts on the rod are turned up, giving the rod any required degree of tension, and binding the blocks and joists firmly together.

Improved Sharpening Machine.

James P. Kealy and Joseph Bigney, Bridgeport, Conn.—This invention is a machine for dressing lathe centers, and consists of a traversing grinder actuated by an automatic feed screw and placed in a frame adapted for being supported in the tool post of a lathe.

Improved Equalizing Attachment or Plows.

David H. King and William M. Hulse, Palmyra, Ill.—This invention consists in an improved metallic loop attachment for holding the equalizing apparatus of a plow, and also in applying a guard bar to the chains used in equalizers

Improved Fireproof Shutter.

Isaac S. Mettler, Jersey City, N. J.—The object of this invention is to protect buildings from fire, and it consists in a metallic shield composed of sliding sections formed of an inner and an outer sheet of metal secured together at top and bottom by plates. The sections are confined in grooves on the inner sides of the casings, each section having grooves of its own. Across the top of the shield, beneath the cap of the cornice, is a shaft having a pulley near each end, over which are cords attached at one end to the lower section and at the other end to a weight. An inwardly projecting flange extends from each section into the groove of the adjacent section, so that, when the lower section is raised, its top strikes the flange of the next above and raises that, and so on, each section being raised by the section below, so that all may be securely packed beneath the cornice and back of the frieze plate. The weights are intended to balance the sections in that position. At night, or whenever there is danger from fire from the burning of adjacent buildings, the shield is drawn down, thus forming a fire protector to the window or door.

Improved Waste Removing Device for Carding Machines.

George W. Craner, Darby, Pa.—This invention consists of a brush and an endless carrier for it combined with the burr box of a carding machine, in such manner that it brushes out the burrs, and, by keeping it clear of them, prevents it from filling and the burrs from overflowing upon the main card.

Improved Insect Destroyer.

John A. Finney, Nashville, Ohio.—An axle is turned by drive wheels, and by suitable gearing actuates an endless belt which carries the insects forward. From the belt the insects drop into a hopper placed beneath a roller to receive them, and which has a slot or opening in its bottom, through which the insects drop into the angle between the revolving axle and the roller, where they are crushed and drop through an opening in the bottom of the box to the ground. A reel operated by the advance of the machine pushes off the insects. As the reel arms come in contact with the plants, the ends of the hammer handles slip from a stop bar, and the hammer heads are drawn by springs against the reel arms with a sudden blow, knocking the insects from the plants upon the inclined apron whence they pass to the endless belt.

Improved Dredging and Ditching Machines.

Hyacinthe Gonellaz, Vermilionville, La.—In the dredging machine, a bucket wheel and discharging pan similar to those represented in patent of same inventor, No. 130,213, dated August 6, 1872, are arranged so that the wheel mounted at the bow of the boat revolves in a plane at right angles to it, and delivers the earth at one side, and the pan carrying it in the same direction delivers it on the bank of a canal or river. They are by virtue of such arrangement specially adapted for dredging rivers and canals. In this case also the colters used for cutting and loosening up the earth preparatory to the taking of it by the buckets are arranged on the advancing side of the wheel, and so inclined as to draw the boat forward at the same time that they loosen the earth. The ditching machine, the subject of a separate patent, consists of a series of intermittently rotating colters preceding a rotating wheel with spoons or buckets, behind which is a receiving and discharging pan, combined in a portable machine, and provided with operating devices, all so contrived that, as the machine advances along the ground, the cutters loosen and even up the ground, the buckets raise and discharge it into the pan, and the pan discharges it on the bank at one side of the ditch.

Improved Furniture Spring.

William T. Doremus, New York city.—This invention has for its object to furnish an improved spring for application to other parts of a chair, spring bed, or other piece of furniture where a yielding connection is required. Upon the lower side of one edge of two plates are formed inwardly projecting flanges, in which are formed a number of holes to receive the screws by which they are secured in place. In the plates are formed holes to receive the bar, which has a pin in a recess formed in the upper side. A rubber block, of any suitable form, is interposed between the plates, through which is a rod which forms the hinge, and which is provided with a nut to regulate the tension of the spring. The same inventor has also patented another form of chair spring which consists in flanged plates, hinged together by a transverse bolt passing through suitable lugs. An india rubber block is placed beneath the axis of the hinge. These are only two patents out of more than one dozen applications, all of which have been granted to Mr. Doremus through the Scientific American Patent Agency within the past five weeks.

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 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 also 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 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.

Design patents are equally as important to citizens as to foreigners. For full particulars send for pamphlet to Munn & Co., 37 Park Row, New York.

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.

Value of Extended Patents.

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 term 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.

Trademarks.

Any person or firm domiciled in the United States, or any firm or corporation residing in any foreign country where similar privileges are extended to citizens of the United States, may register their designs and obtain protection. This is very important to manufacturers in this country, and equally so to foreigners. For full particulars address Munn & Co., 37 Park Row New York.

Canadian Patents.

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.

A copy of the claims of any patent issued since 1836 will be furnished for \$1.

When ordering copies, please to remit for the same as above, and state name of patentee, title of invention, and date of patent. Address Munn & Co., Patent Solicitors, 37 Park Row, New York city.

Munn & Co. will be happy to see inventors in person, at their office, or to advise them by letter. In all cases, they may expect an honest opinion. For such consultations, opinions and advice, no charge is made. Write plainly do not use pencil, nor pale ink; be brief.

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