

**Improved Potato Digger.**

Henry M. Dowd, Saratoga Springs, and Willis W. Dowd, Jr., North Granville, N. Y.—An endless carrier has teeth or fingers arranged in rows across it, at suitable distances apart, for taking the potatoes from the scraper and carrying them up so as to deliver them into the hopper. The scraper or shovel consists of a straight wide plate of steel extending horizontally between the side pieces and transversely to the longitudinal direction of the machine, with the front edge sharpened and slanting downward considerably. The rear edge of the scraper has parallel bars attached to it, which are for allowing the earth raised up with the potatoes to fall back, while retaining the potatoes to be taken by the fingers of the carrier, which are caused to rise up between these bars. The side pieces, to which the scraper is attached at the ends, are extended rearward and upward so that the carrier works between them to receive all the potatoes forced up on the bars, and the lower edges constitute runners for gaging the scraper and maintaining it in the required position relatively to the carrier. By suitable arrangement of apparatus for raising and lowering the scraper and carrier, the scraper is raised vertically or very nearly so, and maintained horizontally. The truck wheels are made large to support the frame high enough to provide sufficient space under it for the raising of the carrier and scraper and holding them to be transported above the ground, so that the evener, to which the team is hitched, can be suspended below the frame, and yet be high enough to work properly. The draft is applied directly to the scraper and, through it and the suspending devices, to the truck; and a chain connection and the mode of suspending the evener and draft bar allow of the raising and lowering of the scraper and carrier, and also allow the scraper the freedom for swinging required while at work.

**Improved Washing Machine.**

Edwin S. Bliss, Richburg, N. Y.—This invention has for its object to furnish an improved washing machine of that class in which the clothes are washed by alternately saturating them and passing them between rollers by which the water is pressed out, carrying the dirt with it. The lower rollers revolve in bearings in the standards and the upper pressure roller revolves in bearings which slide up and down in slots in the upper part of the standards. A bar, the ends of which fit into the slots, rests upon the tops of the bearings. Two elastic bars are arranged above the bar and connected with loops, the ends of which are pivoted to the outer sides of the standards. The pressure of the spring is regulated by moving the loops out or in upon the projecting ends of the spring bars. A guide apron or belt passes around the rollers. By suitable devices the machine can be quickly attached to and detached from the tub, and when attached will be firmly and securely held.

**Improved Spinning Mule.**

Thomas H. Rushton & Robert Touge, Bolton, Eng.—The object of this invention is to simplify the gearing of hand and self acting mules for producing the after stretch and for giving motion to the front roller during the twisting at the head; also, to render self acting mules suitable for spinning fine numbers; secondly, in an improved arrangement of mechanism for locking the fallers and for unlatching the "long lever," forming parts of a self acting mule.

**Improvement in Propelling Canal Boats.**

William F. Miller, East Walpole, Mass.—This invention is an improvement in the class of canal boat propellers wherein a vertically adjustable wheel is arranged to run on the bottom of the canal, or a rail laid thereon; and consists in the connection of a locally fixed driving gear with the rotary vertically sliding driving shaft of the propelling wheel, and in the arrangement for throwing the mechanism by which the wheel is raised in and out of gear.

**Improved Boot Jack.**

Horace Arnot, Barclay, Pa., assignor to himself and G. W. Dickey, of same place.—The object of this invention is to furnish a boot jack, which takes hold firmly of the boot at toe and heel, and allows its easy pulling off. This invention consists of two jaws with inclined slotted parts, which grasp the heel by the action of the foot on a pivoted U-shaped rod frame guided therein.

**Improved Broom.**

John D. Bell, Wattsborough, Va.—This invention relates to the construction of brooms, and consists in a wooden handle with a tapered end, and a tubular socket for holding broom corn, or other material for the brush. In practice, the butts of the broom corn are inserted and closely packed in the socket. The tapered end of the handle is then forced down among them, thus wedging them between itself and the inner sides of the socket. When the brush needs renewal the screws which are used to secure the socket and handle together are removed, the handle withdrawn, and the stumps of the corn extracted. The socket is then refilled as before.

**Improved Reversible Harrow Teeth.**

George W. Hurst, Avon, O.—This invention consists in providing a harrow tooth with two arms or shanks, which, forming an angle with the tooth, are attached on different sides of the longitudinal bar of harrow frame, and thus trace it in two directions.

**Improved Sawing Machine.**

George Marshall, New York city.—This invention relates to an improvement in the mechanism for sliding the bearings of the saw mandrel in a ripping and cross cutting machine; and consists in the connection of the sliding carriage and its belting with a powerful foot lever and friction rollers, by which the saw can be moved and operated in both directions, and adjusted rapidly for the different purposes to which the machine is applicable.

**Improved Combined Scissors and Tape Line.**

Margaret J. Stubbings, Youngstown, O.—The object of this invention is to combine the common scissors or shears with a spring tape measure so that, by the increased convenience in handling and readiness of having both within reach, a very useful and practical instrument is produced. The invention consists in placing the center of the tape line case on the extended screw pivot of the scissors, so that both instruments can be used without interfering with each other.

**Improved Kindling Wood Cutter.**

Nicolas Sonnichsen, San Francisco, Cal.—This invention consists of a knife with a handle attached to a vertical frame, which is applied to some convenient place in the kitchen or other place, and has several step-like rests supporting the wood, which is split by the pressure of the knife upon it.

**Improved Earth Auger.**

Andrew Sorg & Samuel C. Bollman, Decatur, Ind.—The object of this invention is to construct an earth borer which serves at the same time as a receptacle for carrying up the ground from the bore hole. The invention consists in a cylindrical body or receptacle, with cutting teeth at the lower end, which is applied to the end of the bore shaft, and composed of two parts, the smaller of which is pivoted to the larger in such a manner that by suitable rope connection the pivoted part acts against the main part, embracing the earth between them, to be lifted out.

**Improved Carving Machine.**

Henri Thomas, Brooklyn, E. D., N. Y.—In this improved carving machine two centering holders are employed, one for holding the pattern and the other the work, on sliding beds arranged on quarter circular ways on the top of the table, which meet each other at the middle of the back of the table, and diverge therefrom to the front side. Above these are the tool and guide or detector, which hangs vertically from their supports in the free ends of horizontal arms which are pivoted to a block over the table near where the ways of the holders meet, in such an arrangement that they traverse the work and pattern in the longitudinal axes of the center holders. The work and pattern traverse the paths in which the tool and guide swing, so that the requisite motions are obtained for the tools to act on all parts of any surface in the holders. Different sides or surfaces are presented by turning the work and pattern in the holding centers. The block to which the pattern and tool arms are pivoted is made to slide vertically on a support, with a screw under the control of the operator; the arms of the tool and guide are also at the control of the attendant by means of a sliding block to which they are connected, for being swung to move the tools, as required in the progress of the work; and the bed plates of the center holders are caused to swing forward and backward on their ways by a hand screw and a traversing nut, to which they are suitably connected.

**Improved Mop Wringer.**

James H. Newton, Paxton, Ill.—The object of this invention is to furnish, in connection with the mop in common use, an effective wringer, by which the cloth may be wrung dry without the use of the hands. The invention consists in the arrangement of the mop with rollers having spiral springs in their interior, in connection with a sliding piece and strings, by which the mop is drawn through the rollers and pulled back again for use by the action of the roller springs.

**Improved Combined Furnace and Steam Generator.**

Oliver W. Ketchum, Toronto, Canada.—This invention consists in a mode of producing a continuous combustion of fuel in the furnace of a steam generator (after ignition) by forcing one or more currents of air upon it. It also consists in conveying the heat and products of combustion (after passing through a horizontal flame chamber) to the water in the boiler by means of a pipe constructed so as to curve upward from the flame chamber above water mark, and return below water line, passing through the boiler horizontally; and discharging into the water through pipe having perforations which increase in size and number toward the end. The invention also consists in providing the boiler on the inside with concave projections running through its length on both sides above the pipes referred to, and above the water line, so that the ebullitions of water above said pipes, and caused by escape of gas, are thrown back into the middle of boiler. It also consists in providing the dome of boiler with concave pieces of iron resting one upon the other, constructed with spaces between each and between the sides of dome, to act as additional deflectors.

**Improved Animal Trap.**

Jacob Merchen, Brookville, Ind.—The object of this invention is to furnish to farmers and others a mole trap, durable on account of the strong and substantial parts. The invention consists of two legs with a collar at each end, connected by a strong spring of plate metal. A piece of square metal is wedged between the smooth legs, so that the slightest touch will close the legs with strong force, capturing or killing the animal within reach.

**Improved Package for Caustic Soda or Alkali.**

Henry B. Hall, New York city.—This invention consists of a metallic cup of soft iron, lead foil, or lead and tin, or other alloys of lead, or the metal known as Crooke's patent foil, which is composed of lead and tin in strata, the lead being in the inside and the tin on the outside. In this the caustic alkali is poured in a liquid state, and inclosed and sealed by a cover of melted resin poured in after the alkali has solidified but before it has quite cooled, the resin being tempered to correct its brittleness; any other gummy substance capable of sealing the mouth of the cup airtight will answer as well.

**Improved Combined Collar and Cravat.**

Frederick D. James, Tamworth, N. H.—This invention has for its object to produce a simple combination of bow, cravat or neck tie, and collar, being more particularly intended for use on paper or part paper collars, though applicable to other kinds. The invention consists in constructing the collar with projecting flaps at the ends of its outer fold, for forming the base of the cravat, and with a projecting T flap at one end of its inner fold for forming the outer part of the collar, the T flap having several button holes to allow its parts to be fastened to the same stand by which the collar is held to the front of the shirt.

**Improved Stave Machine.**

Benjamin W. Warner, Rome, N. Y., assignor to himself and Albert E. Smith, of Utica, N. Y.—This invention consists of a pair of tapering and beveling cutters for tapering and beveling the edges of the stave, combined with the apparatus for sawing the staves from the bolts, and planing the sides in such manner as to bevel and taper the edges at the same time that the staves are sawed.

**Improved Children's Carriage.**

Francis Snyder, New York city.—This invention has for its object to furnish a combined perch and spring for a child's carriage, which, should the wheel strike an obstruction, will spring longitudinally, so that the body of the carriage will not be stopped with a sudden shock. The invention consists in bending the ends of the perch upward and inward into the form of the letter C, and pivoting the same to the toe irons attached to the carriage body.

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

**ROBABLY** 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 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 posal 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.

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 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.

**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 1839 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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