Practical Hints to Inventors.

MUNN & CO., Publishers of the SCIENTIFIC AMERICAN have devoted the past twenty-five years to the procuring of Letters Patent in this and foreign countries. More than 50,000 inventors have availed themselves of their services in procuring patents, and many millions of dollars have accrued to the patentees, whose specifications and claims they have prepared. No discrimination against foreigners; subjects of all countries obtain patents on the same terms as citizens.

How Can I Obtain a Patent?

s 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.

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.

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.

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A re-issue 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.

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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.

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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.

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MUNN & Co. have solicited a larger number of European Patents than any other agency. They have agents located at London, Paris, Brussels, Berlin, and other chief cities. A pamphlet pertaining to foreign patents and the cost of procuring patents in all countries, sent free.

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, opinion, and advice, *no charge is made*. Write plain; do not use pencil, nor pale ink; be brief.

All business committed to our care, and all consultations, are kept *secret and strictly confidential*.

In all matters pertaining to patents, such as conducting interferences, procuring extensions, drawing assignments, examinations into the validity of patents, etc., special care and attention is given. For information, and for pamphlets of instruction and advice,

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Examples for the Ladies.

Mary Wood, of Chicago, Ill., has earned with her Wheeler & Wilson Machine, in five years, over $5000; an average of $20 a week.

"We consider *Burnett's Flavoring Extracts* superior to any others."—*Parker House, Boston.*

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

MOTH PROOF BOXES.—Raphael M. Seldis, of New York city, assignor to Jason Crane, of Bloomfield, N. J.—This invention provides boxes, packages, trunks, and similar receptacles with an inner lining, whereby moths will be effectually excluded, and the consequent destruction of the contents prevented. The invention consists in applying a coating of thin gutta percha to the inner side of every such receptacle. This not only makes the same practically airtight, to prevent dust and other impurities from entering, but is also injurious to moths, as, by its peculiar odor and exhalations, it is claimed to destroy them.

MACHINE FOR THREADING BOLTS.—Charles Schneider, of Newark, N. J.—This is a screwcutting chuck which can be conveniently opened apart after a screw thread has been cut, to enable the removal of the finished screw or bolt without necessitating the ordinary tedious process of unscrewing. The invention consists in making the chuck in sections, which are pivoted to sliding pins in such a manner that they can be moved forward, and swung apart conveniently after a screw has been cut; whereby considerable time in the cutting of bolts and screws is gained, and the expense of their manufacture consequently reduced.

BLACKING BOXES.—Thomas R. Sinclaire, of New York city.—This box may be stamped from a single piece of tin or other sheet metal, or made of pieces soldered together, as may be deemed advisable or convenient by the manufacturer. Instead of making the sides of the box perpendicular with the bottom, and thereby leaving a sharp corner to retain a large portion of the blacking, as is the case with the blacking boxes in common use, the sides are placed on a level, leaving an angle still, but an angle so obtuse that the brush readily reaches the last particle of blacking in the corners. This formation is claimed to not only save at least ten per cent of the blacking, but to save the brush from injury sustained in forcing it into a sharp corner and against the sharp edge of the box, besides a great deal of trouble and annoyance to the user.

PROPELLING POWER.—Nathaniel B. Baldwin, of Chicago, Ill.—This is an improved apparatus for drawing plows, wagons, reapers, mowers, and other machines, and for propelling thrashers and other stationary machinery. It is a four wheeled traction engine, the driving wheels of which are turned by pivoted levers actuating pawls which engage with ratchets.

APPARATUS FOR FORCING LIQUIDS.—Mancelia E. Ogden, of New York city.—This invention has for its object to furnish a simple, convenient, and effective apparatus for forcing beer, ale, or other liquids out of their casks by atmospheric and hydraulic pressure. It consists in a combination of a tank with a slide and with pipes and valves, a pivoted lever, connecting rod, weighted lever, catch, bent arm, sliding rod, rod, pipe and stop cock provided with valve and stop cock, and an air tank provided with stop cocks, the whole being constructed in a peculiar manner, the nature of which precludes detailed description in this place.

TELEGRAPH INSULATORS.—George W. Kidwell, of Elwood, Ind.—The insulator is made of glass or other good non-conductor and is divided longitudinally into two or more parts, and is made tubular for receiving the telegraph wire. There is a groove around the insulator, by means of which the insulator is secured in the block by a pin. There is a hollow cavity in the flat side of one of the parts of the insulator, and a round projection on the other part which fits into the cavity. This is simply for holding the parts of the insulator in place, and to aid in adjusting it in the block. There is a slot in the block communicating with the insulator hole. This slot allows the telegraph wire to be slipped into the hole in the block; the parts of the insulator are then applied to the wire, thus enclosing it, and then slipped into the block on the pole, where the insulator is secured by a pin. By this mode of applying an insulator to the wire, it is claimed much valuable time is saved in putting up and repairing the wires, and the cost of the insulators is greatly reduced.

AIR REGISTERS.—Edward A. Tuttle, of Brooklyn, N. Y.—This invention relates to improvements in the registers used for regulating the passage of air; and it consists in a combination with the slats of a spring or springs in such a manner as to retain them in any position as may be required for controlling the passage of the air. By the employment of these springs, an elasticity is imparted to the support of the slats by which they are adapted to receive slats of different lengths, which is desirable, because they often vary in length, though made from the same pattern; but care will be taken to have the slats for each register as nearly the same length as possible. The said spring plates also afford a means for compensating for variations in the thickness of the sides of the frames commonly supporting the journals, which also often occur in casting, thereby obviating the necessity of fitting them, as they have had to be heretofore. The said arrangement is highly desirable over registers of railroad cars, to prevent them from rattling, as well as to hold them from turning.

DITCHING PLOW.—Henry D. Williams, Fairview, Iowa.—The construction of this plow enables the draw bar to be so adjusted as to draw the machine forward in a straight line, or to cause it to move to the right or left to pass obstructions, or change the direction of the ditch without its being necessary to change the position of the capstan for that purpose. While the nature of the invention precludes a more detailed description of parts, we may say something further relative to the merits of the invention. It appears to us to be well adapted to the purpose, in that it can be made as strong and durable as may be desired, there being no complications introduced likely to get out of repair. The draft strain upon the cutters is supported and the whole machine bound together by a metallic strap or band. The mold board is so elongated as to act with efficiency in throwing out the earth to the proper distance from the ditch. A shoe gages the depth of the cutting, the whole forming a very compact, solid and easily manipulated implement.

MECHANICAL MOVEMENT.—William F. Jones, of Easton, Kansas.—This invention relates to a new and useful improvement in a mechanical apparatus for imparting power and motion by means of horse or other motive power applied thereto for operating tools or machinery. A driving face wheel is made to revolve on a horizontal arm of a vertical stand. A spider, consisting of four, more or less, tubular arms, is attached to the stand. Pinion wheels, with which the driving gear wheel meshes, are employed, equidistant from each other on the face of the wheel. A shaft passes entirely through the spider. One of the pinions may be made fast on this shaft, so that the shaft will revolve, and the other pinion may be loose and revolve on the shaft. In the former case motion may be taken from the end of the shaft; but in case one or both of the pinions revolve on this shaft, they may have a socket hub, or center, so constructed as to couple and impart power and motion to other mechanism or tools for any purpose which may be required. Motions in reverse directions may be obtained either for conveying power and motion, or turning augers, drills, or other tools. The pinions, one or more, may have socket hubs for the introduction of coupling-bars or tools, as may be desired.

BEE HIVE.—Sandy S. Collins and Hiram Senseman, of Tremont, Ohio.—This improvement provides a double bottom to hives for the reception of the droppings of the bees, and, by a peculiar device, to serve as a moth trap. Other features are the strengthening of the comb frames, provision for the ventilation of the hive, for the protection to the bees while inserting the comb frames, for the convenient inspection of the honey boxes, prevention of damp in the hives, etc., etc.

ANIMAL TRAP.—Nathan S. Howell, of Tualatin, Oregon.—This invention consists in the arrangement of a trap having two pivoted toothed jaws, which catch and hold the animals by their bodies, the jaws being actuated like the jaws of the ordinary double steel trap.

ELECTRIC LINING FOR SAFES.—Edwin Holmes, of Brooklyn, N. Y. and Henry C. Roome, of Jersey City, N. J.—This invention relates to an improved method of applying electric alarm apparatus to safes, vaults, and other structures, with the view to greater efficiency of action and simpler mode of application. The method heretofore employed has been to apply a lining connected with the electric apparatus directly to the inside of the safe or vaults. Whenever such a safe or vault is attacked by burglars; it is injured or destroyed before the lining is reached and the alarm given. To remedy this defect the inventor builds, around the structure to be guarded, an exterior case, to which a lining, which may consist either of metallic sheets or a network of wires, is applied, and which constitutes an exterior electrical burglar proof safe of itself, so that if any attempt be made to enter by cutting, drilling, or breaking through, an alarm will be sounded before the structure guarded is itself reached.

APPARATUS FOR FILTERING LIQUIDS.—Thomas R. Sinclaire, of New York city.—The object of this invention is to overcome some difficulties which have been met with in the use of the filtering apparatus for which letters patent of the United States were granted to the same inventor, dated April 27, 1869, and July 6, 1869. It consists in a perforated tube or receiver within the filtering vessel, of conical or other form, connected with the bottom of the vessel and extending upward therefrom, consisting of perforated metal, wire gauze, and textile or fibrous material, or their equivalents, the same being surrounded by the charcoal or filtering material. The filtering vessel may be of any suitable size and form, provided with a conical or oval top or cover, with a ring or eye for lifting and handling the same. A flange is formed around the rim of the vessel. The cover is so securely confined to the vessel by bolts, that the connection will allow liquids to be filtered under pressure. The filtering vessel is filled, or nearly filled, with charcoal or other filtering material for clarifying and purifying liquids. Charcoal is usually employed. In filtering under pressure on the old plan, or without an interior perforated receiving tube or its equivalent, more or less of the liquid, it has been found, will force its way between the charcoal and the side of the vessel, or through channels in the coal itself, and will consequently be but partially filtered or clarified, thus rendering the whole operation imperfect and unsatisfactory. By the introduction of the receiving tube all the liquid is compelled to pass and to be regularly distributed through the body of the filtering material and into the perforated tube through the coverings thereof, by which operation all the liquid is thoroughly filtered and purified.

HONEY BOXES FOR BEE HIVES.—Ellery Channing Lewis, of Glasgow, Mo.—This invention has for its object to improve the construction of honey boxes so as better to adapt them for use, both in connection with the hives and in sending the honey to market; and it consists in a construction of the boxes whereby any box of the series may be removed without disturbing the other boxes, and replaced by a new box; or the honey may be removed and the same box put back in its place. Hexagonal honey boxes are made with slots in their lower sides and with slots in their upper sides to adapt them for use in connection with each other and with a bee hive. The hexagonal boxes are made with their lower sides movable and secured to the ends of said boxes. The boxes are provided with cross slots formed in the upper angle.

BRIDLE BITS.—Albert Vanauken, of Ludlowville, N. Y.—This invention relates to hollow bridle bits, perforated to allow a melted substance to exude therethrough. The mouth piece is made hollow to receive the medicine, and has a number of small perforations formed through its side through which the dissolved medicine or the vapor of the medicine may escape into the horse's mouth. The mouth piece is plugged by metallic screw plugs which carry the rings.

LINK JOINTS FOR WATCH CHAINS.—Charles B. Charpenter, of North Brattleborough, Mass.—This invention has for its object to furnish an improved joint for connecting the links of watch chains, watch guards, etc. It consists in a joint formed by combining two rings with each other and with the end of the adjacent links, which construction gives the necessary flexibility to the chain and produces a chain strong, durable, and substantial, and, at the same time, neat and elegant in appearance.

AGRICULTURAL BOILER.—John Murdock, of South Carver, Mass.—This improvement in boiler furnaces consists in combining therewith a damper for direct draught, wherein the heat is carried completely around the kettle in one united flue. The advantage of the improvement is that the damper is enabled to give a much larger opening where the upper portion of th kettle becomes heated, while opening directly into the smoke pipe; and closing the flue around the kettle, all circulation is effectually arrested. By the arrangement of discharge orifice and damper a direct draught is given to the furnace in starting a fire. The heat may be regulated as may be required by the contents of the boiler, as damage is frequently caused by allowing the full heat of the furnace to pass up around the boiler when the boiling is nearly or quite completed.

APPLE CORER.—Stephen C. Collins, of Oregon, Mo.—This invention relates to a new, simple tool for coring apples, consisting only of a handle and a trough shaped conical cutting blade, which is adapted to core apples of larger or smaller size.

BEDSTEAD FASTENINGS.—Thomas W. Moore, of New York city, assignor to Frances N. Moore, of same place.—The object of this invention is to furnish a cheap, strong, and durable bed fastening. It consists in a flanged metallic angular tenon attached to the bed rail in combination with an angular mortise in the bedpost, the construction and arrangement of the tenon, the holding flanges entirely upon one side of the tenon, and the bearing surface of the wood entirely on one side of the mortise, thus making the fastening secure and durable. The mortise in the post is made by boring a round hole, inclining inward, and then cutting a slot to it from the outside to fit the plate of the tenon so as to leave the bearing surface all on one side of the slot.

MUSIC STAND.—Willard C. James, of Fishersville, N. H.—This invention relates to improvements in music stands; and it consists in a novel arrangement of the rack and legs for being inclosed in a tubular support, adapted to be used as a walking cane, so that it may be more easily carried from place to place than the ordinary racks.

STEAM GOVERNOR.—George W. Clark, of Council Bluffs, Iowa.—This invention consists in the application to the ordinary governor of a weight, to be moved towards or from the fulcrum as a reinforcement to the balls to assist in moving the valve, and apparatus for shifting the weight, said apparatus being actuated in one direction by the steam and in the other by gravity or a spring, to move the ball one way as the pressure increases, and the other way as it falls. We would be glad to describe more at length this ingenious device, but we could not make its action clear without the aid of engravings. We judge it constitutes a very sensitive governor without much complication.

WATER METER.—Camille Campeaux, New York city.—This invention relates to a new instrument for measuring the quantity of water or other fluid passing through it and recording the measurement thus taken. The invention consists in a new arrangement of parts, whereby a float is caused to alternately open and shut a valve and impart intermittent rotation to a recording gear. The nature of the device precludes detailed description in this place.

CORN PLANTER.—Bendix Ingebrigtson, of Cambridge, Wis.—This invention relates solely to certain improvements in the dropping gear of corn planters, whereby the seed is deposited in the drills or hill formed by markers in an accurate and uniform manner.

REFRIGERATOR.—James W. Fisher, of Islip, N. Y.—This invention has for its object to furnish an improved refrigerator which shall be simple in construction, convenient in use, and at the same time strong, durable, and not liable to get out of order; and it consists in the construction and arrangement of various parts which cannot be described without diagrams, but which together form a very convenient and neat design for the purpose intended.

FASTENING FOR WINDOW BLINDS.—Isaac Amos, Belair, Md.—This invention consists in a peculiar construction of pintle for the lower hinge of a blind, whereby the blind is locked and unlocked by sliding the said pintle up and down. The blinds may also be swung open or closed by aid of the device.

BALANCED VALVE FOR STEAM ENGINE.—David W. Huntington and William A. Hempstead, South Coventry, Conn.—This invention consists in a plate covering a slide valve having a vertical exhaust discharge opening through it, which plate, also having an opening for the exhaust, is provided with a hollow cylinder extending up into another cylinder in the top of the steam chest, in which it fits steam tight, which cylinder prevents the action of the down pressure upon a portion of the plate nearly as large as that under the plate open to the atmosphere, so that there is only a slight preponderating downward pressure, merely sufficient to keep the joint of said plate with the top of the valve tight. As this cylinder on the said plate is liable to bind in the cylinder of the steam chest, in which it must fit steam tight, and thus not always rest on the valve with sufficient pressure, a bar or rod is applied to it, having a slight forward and backward motion to oscillate said plate and prevent it from sticking in the cylinder of the valve chest.

BEE HIVE.—Martin R. Sanders, Cambria Township, Pa.—This hive is of a rectangular form, and provided with a hinged bottom having supports or feet and a side door, with a removable glass panel, to permit easy and safe inspection of the operations of the bees at all times. Ventilating apertures are formed in the bottom and side of the hive, respectively, and closed by pivoted buttons, which are imperforate at one end and provided with wire gauze in the perforation of the other. The gauze affords ventilation, while preventing entrance of vermin into the hive. The door for closing the main bee entrance is attached to the side of the hive by screws working in slots, and notches are formed in the side of the slots to adapt the door to be supported on the screws. The lower edge of the hive is beveled, to allow the bees to work all around the edge, and leave no space for worms or other vermin to find a lodgment. The door is provided with vertical grooves in its side edges corresponding to beads on the hive. Thus a perfectly vermin proof joint is formed, as well as one calculated to keep out moisture, etc. The comb frames have a bottom bar and transverse middle bar, to form supports for the comb, so that it will not be liable to break down when being removed or transported from place to place. They are supported at the back of the hive on fixed cleats or bars, fitting in notches, and at the front by wire hooks. Drawers for surplus honey are arranged to slide into the upper compartments of the hive, and provided with removable glass fronts. When it is desired to remove one of the boxes, it is only necessary to open the glass front, and thus allow the cold air to pass in, which has the effect of immediately driving the bees into the lower part of the hive. Similarly, by removing the glass panel of the door, the bees will be forced into the boxes, and the comb frames may be manipulated with safety. The door is made in two parts—the upper to close the box, and the lower to close the comb frame compartment.

BOTTLE STOPPER.—Wendell Wright, of Phœnicia, New York.—The object of this invention is to provide a stopper for bottles, jars, jugs, etc., which may be inserted and withdrawn an indefinite number of times without injury, and which shall be homogeneous in its texture, and uniform as regards its elasticity. It consists in making the stopper of a block of wood, provided with a deep annular groove, by which the outer bearing surface of the stopper forms a ring, more or less elastic and flexible, according to its thickness and the nature of the wood. These stoppers are very cheaply made, and it is claimed, may be used over and over again without the least injury, besides being superior as stoppers to the ordinary corks used for that purpose.

PISTON PACKING.—Herschel P. McCarroll, of Pittsburgh, Pa.—This invention relates to the use of a continuously self acting expansion spring within the ordinary packing spring of a steam engine or pump piston, and to a new arrangement of interior steady pins. One of the heads has a projecting ring, against which the other head rests. Between this ring and the packing spring is interposed a coiled spring, which bears with constant pressure against the packing spring, and counteracts the contracting efforts of the same. The power of the springs will always be balanced, for the latter becomes weaker as the former is enlarged, and consequently also weakened. In this manner an equal pressure on all points of the packing spring is sustained. To the inner side of the ring is secured a series of springs, which are by jointed links connected with radial steady pins. These pins fit through the ring, and bear, by the power of the springs, against the inner face of the coiled spring. The pins serve to steady the coiled spring and make it act uniformly against the packing spring.

BELL PULL.—Amos L. Swan, of Cherry Valley, N. Y.—This invention relates to a new arrangement of levers constituting a bell pull; and has for its object, by the improved combination, to insure reliable action under a short motion of the pull. By pulling on the knob, levers will be swung so as to carry another lever down, and cause it to pull on the wire that leads to the bell. A short motion of the knob will suffice to produce a complete swing of the latter lever, and insure the desired disturbance of bell or stroke of clapper. On being let go, the knob will, by the power of a spring, be drawn in again and all parts brought back to their normal position.

CONSTRUCTION OF ARCHES.—Frank Alsip, of North McGregor, Iowa.—This invention relates to an important improvement in brick arches, whereby such articles are made to sustain a greater weight, and are more durable than when built in the ordinary manner. It consists in a bearer of metal or other suitable material, supported on the cap piece of the column, and in a cross piece, by which arrangement the wall is sustained by the bearer and column, and the arches are relieved of the greater portion of its weight. The caps may be made in proportion to the size of the column, as the arches may be made much lighter, while the thrust of the arches is much diminished.

CHURN DASHER.—William C. Broyhill and William D. Sperry, of Tremont, Ill.—This invention has for its object to provide farmers and dairymen with an improved churn dasher, which shall be capable of completing the operation of churning more quickly, and also better adapted for use in gathering the butter than others of its class. To this end the under side of the radial dasher blades are grooved, made of wedge form in cross section, and set at an inclination of about thirty degrees to a vertical rotating shaft. The agitation produced by the revolving of the shaft, thus bladed, in the cream soon breaks the globules of butter and completes the process of churning. In churning the dasher is turned so as to raise the cream. In gathering the butter, after the process of churning is completed, the dash is turned in the opposite direction.

PIPE TONGS.—James Stratton, of New Haven, Connecticut.—The griping levers of the pipe tongs, instead of having a steel face made fast to the short jaw, as now practiced, has a circular plate or disk, (preferably of steel) attached to the bottom of jaw, so that it cannot escape therefrom or change its relative position to the upper jaw; but, also, so that it can move on its axial center, and thus continually present a varying surface for wear. In this manner the whole of the belt of contact surface near the edge will wear down together. The top surface is then simply ground down to a plane face, and this is performed again and again until the whole circular plate or disk is worn out and utilized.

MACHINE FOR CUTTING BOOT AND SHOE COUNTERS.—Sylvanus C. Phinney, of Stoughton, Mass., assignor to S. C. Phinney and J. C. Phinney, of same place.—The object of this invention is to furnish a machine for dividing leather, or for cutting it into counters for boots and shoes without waste. It consists in the mode of adjusting a knife, feed rolls, and gage, and in the arrangement of the same in relation to each other; through which a machine is produced, which, it is claimed, divides leather into counters in a most perfect and satisfactory manner, effecting a very great saving in material as well as in time.

FOUNTAIN.—Henry H. Sawwell, of Randolph, N. Y.—This consists of two inclosed chambers and two open pans so connected together by pipes that, when one of the chambers is filled with water, the transfer of the water from the one to the other causes a jet to be projected upwards which will be continued until all the water is thus transferred. The fountain thus constructed is portable and suitable for conservatories, etc.

LIFTING JACK.—Arthur A. Davis, of Clark's Green, Pa.—This invention relates to a new and useful improvement in jacks for lifting carriages, wagons, and other vehicles and articles. When it is desired to drop or lower the lifting bar quickly, a lever is raised higher than is required in lifting, when the end of the lever between cams strikes a lug on an upper catch, and releases the catch from the friction with the bar, and at the same time the toes of the cams strike the outer end of the lower catch plate and release that catch from the bar, when the bar drops by its own gravity.

LAYING TILES.—Manly A. Burnham, of New York city, assignor to himself and Tobias New, of same place, has patented a new and useful improvement in laying tile. This improvement, in laying tile in vestibules, halls, and other apartments, consists in the use of a continuous stone bed or floor above the foundation and "gage mortar," which prevents the tile from being affected by the shrinking, swelling, and warping of the wood foundation beneath. This tile flooring is supported, first, by the foundation timbers or joists, which rest in the walls of the building. On these timbers a flooring of boards or planks is placed. To prevent warping the wood floor is made of narrow pieces, placed so that they may swell without crowding each other. A layer of gaged mortar rests upon the floor, upon which the tile floor is usually placed. This layer of mortar (as tile floors are ordinarily laid) is more or less disturbed by the swelling and warping of the wood floor beneath, and, as a natural consequence, the tile becomes loosened and uneven, and frequent repairs are necessary. As a remedy for these very serious evils, a continuous floor, composed of marble slabs or of stone (either natural or artificial) is embedded in the gaged mortar. Upon this stone floor a layer of plaster of Paris or other suitable cement is spread sufficiently thick to form a level surface. Upon this the tile floor is laid, the tile being bedded down so that the upper surface will present a perfectly level plane. The tile floor supported in this manner will not be affected by the swelling, shrinking, or warping of the wood beneath. The pieces of tile are cemented to the stone floor; and the adhesion of the stone floor to the gaged mortar in which it is embedded being perfect, it is claimed all objection to the floors laid above wood supports is obviated. By the use of the stone floor, a permanent sidewalk or an area may be laid out of doors as well as indoors.

HARROW.—Elial S. Herrington, of Emmett, Ohio.—This invention has for its object to furnish an improved machine for harrowing the ground, breaking up the lumps and clods and leveling off the ground, leaving it light, smooth, and level; the harrow frame is made triangular in form and in two equal parts, which are hinged to each other at the forward and rear parts of the central short longitudinal or line bars by double jointed hinges. This construction enables the two parts of the frame to be turned into a vertical position, so that it may be drawn upon the central bars when passing from place to place, or whenever it is desired that the harrow should not operate upon the ground. The harrow teeth are attached to the frame in the ordinary manner, except that the two teeth attached to the rear parts of the central or line bars are made longer than the other teeth, to take a firmer hold upon the ground. A box, open upon its upper side, has its ends inclined, so that it may fit into the space between the rear parts of the inclined or outer side bars of the triangular frame. To the forward parts of the ends of this box are pivoted the ends of a bail, the middle part of which is connected with the rear hinge, or with the rear part of the said frame by a short rod or chain. Two boxes placed in the rear of this box, the ends of the forward one being connected with the ends of the first box by short rods or chains, and the ends of the rear one of which are connected with the ends of the other one by short rods. To one of the boxes, preferably the middle one, is attached a seat for the driver. If desired, the boxes may be weighted with stones or other heavy material when additional weight may be required for breaking the clods and leveling the ground.

REIN AND SHAFT SUPPORT.—James P. Crutcher and Thomas Y. Vancleave, of Connersville, Tenn.—This invention consists in a new line supporter applied to buggy shafts or carriage poles, so that it will also serve to support the rear ends of such shafts or poles, when detached from their vehicles, on the animals' backs and preserve them from injury.

COMBINED CLOTHES DRYER AND AWNING.—Charles E. Hyde, Oswego, N. Y.—This invention consists in the combination of a frame with an awning which latter can be used either in connection with cords stretched on the frame for the purpose of forming a clothes dryer, protected by the awning from rain, or may be used without the cords, simply as a tent.

FASTENING FOR CORRUGATED ROOFING.—John C. Wands, Nashville, Tenn.—This invention relates to a device for fastening together sheets of corrugated roofing by means of a Z shaped clamp into whose angles the edges of the upper and lower sheets are passed, the same being thereby prevented from springing apart.

CARRIAGE SEAT JOINT.—John A. Hanna, Belair, Md.—The invention consists in forming swells or extensions on each side of the joint so as to produce large planes for bearing surfaces and thus secure the shoulders from being staved up; also in a flap that automatically removes the dress and prevents it from being caught.

CLOTHES WASHER.—David P. Sulouff, Milton, Pa.—This invention relates to a washer intended to go inside a wash boiler and to support the clothes to be washed, holding them above the water, and provided with a pipe having a rose head through which water is forced by the steam pressure, falling from the rose heads in jets on all parts of the clothes.

CLOTHES WASHER.—David B. Sulouff, Milton, Pa.—This invention relates to a washer intended to go inside a wash boiler and to support the clothes to be washed, holding them above the water, and provided with pipes, one at each end, having rose heads through which water is forced by steam pressure, falling from the rose head in jets on all parts of the clothes.

SASH FASTENER.—John C. Hanna, Rossville, Iowa.—This invention consists of a device formed of two plates pointed together like a butt hinge, one of which plates is to be let into the side of a window sash, the hinge being placed next to the casing; the other plate being free and provided with a right angle flange at its upper or lower end, which flange, when the free plate is turned back against the casing, enters one of several slots, and thus fastens the window.

COTTON PRESS.—Charles J. Beasley, Petersburg, Va.—This invention relates to that class of presses which employ two followers, one moving upwards and the other downwards. The invention consists in the combination of two such followers, in such a manner that the lower one in rising draws down the upper one part of the way, and when descending raises the upper one. It also consists in the construction and arrangement of a lever for operating the shaft on which are mounted the cords for adjusting the followers. And it finally consists in the combination with said shaft of a horse power for drawing the followers together when it is preferable that the other apparatus for doing the same thing should not be used.

STEAM AND WATER INJECTOR.—Samuel S. Jamison, Jr., Saltsburg, Pa.—This invention relates to the steam injector used for filling boilers with water, and it consists in a double conical piece of metal placed within and lengthwise of the conducting pipe of the instrument, in front of the steam and water supply pipes, an annular space being left between said conical piece and its inclosing pipe for the passage of water to the boiler, the object of the conical piece being to more thoroughly commingle the steam and water than would otherwise be done, and, consequently to more rapidly and completely condense the steam.

BUGGY REACH.—John Clinton Hillsabeck, of Montovallo, Mo.—This invention consists in the provision of certain attachments to buggy reaches whereby a degree of flexibility is given to the vehicle which preserves it from damage, and by which the sudden jerks given to the body by rigid running gear are avoided. The improvement allows either wheel to pass through a hole or over an obstruction without, it is claimed, straining either the axle or any other part of the running gear.

APPLICATIONS FOR EXTENSION OF PATENTS.

SPLICE FOR JOINTS FOR RAIL ROAD RAILS.—John H. Norris and Edward W. Scudder, Trenton, N. J., executors of Mark Fisher, deceased, have petitioned for an extension of the above patent. Day of hearing, Feb. 21, 1872.

CONTINUOUS METALLIC LATHING.—Birdsall Cornell, New York city, has petitioned for an extension of the above patent. Day of hearing, Feb. 14, 1872.

COTTON GIN.—Benjamin David Gullett, Amite, La., has petitioned for an extension of the above patent. Day of hearing, Feb. 7, 1872.

SHOVEL PLOW AND CULTIVATOR.—Paul Dennis, Schuylersville, N. Y., has petitioned for an extension of the above patent. Day of hearing, Feb. 7, 1872.

SHOE PEG MACHINE.—Abijah Woodward, Keene, N. H., has petitioned for an extension of the above patent. Day of hearing, February 7, 1872.

SEWING MACHINE.—Charles F. Bosworth, Milford, Conn., has petitioned for an extension of the above patent. Day of hearing, April 4, 1872.

Official List of Patents.

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121,226.—IRON.—C. Adams, Phila., Pa.
121,227.—OYSTER DREDGE.—W. C. Baker, Baltimore, Md.
121,228.—CULTIVATOR, ETC.—J. W. Blake, Jefferson, Wis.
121,229.—PIPE ELBOW.—J. P. Brace, Springfield, Ohio.
121,230.—PLANER.—L. C. Brastow, A. M. Zwiebel, Wilkesbarre, Pa.
121,231.—STUD.—E. Bredt, New York city.
121,232.—CLAMP.—I. Buckman, Jr., Williamsburgh, N. Y.
121,233.—CUP.—S. C. Catlin, Cleveland, Ohio.
121,234.—BURNER.—C. Cuppers, Brooklyn, E. D., N. Y.
121,235.—FLUTER.—E. M. Deey, New York city.
121,236.—GRATE.—W. Doyle, Albany, N. Y.
121,237.—SEWING MACHINE.—W. Duchemin, Boston, Mass.
121,238.—COVER.—A. S. Dyckman, South Haven, Mich.
121,239.—PAPER CUTTER.—F. A. Fletcher, Newark, Del.
121,240.—EASEL.—J. C. Forbes, Toronto, Can.
121,241.—LANTERN.—A. French, Phila., Pa.
121,242.—CURTAIN FIXTURE.—J. Gray, Medford, Mass.
121,243.—FLOOR.—F. E. Hall, Bridgewater, Mass.
121,244.—HAY PRESS.—F. F. Hamilton, Green Bay, Wis.
121,245.—MELTING CHIPS.—E. C. Haserick, Lake Village, N. H.
121,246.—ORGAN.—A. K. Hebard, Boston, Mass.
121,247.—RAKE.—J. Heuerman, W. Sternberg, J. Stuhr, Davenport, Iowa.
121,248.—PLANER.—A. S. Hewlett, Sebastopol, Cal.
121,249.—DREDGE.—E. B. Lake, Mauricetown, N. J.
121,250.—DRAWERS.—K. V. R. Lansingh, Jr., Albany, N. Y.
121,251.—SLEIGH.—W. Leslie, Gray, Me.
121,252.—COUPLING.—H. H. Morgan, A. Gerry, San Francisco, Cal.
121,253.—LATCH, ETC.—J. H. Morse, Peoria, Ill.
121,254.—CRUTCH.—E. T. Pearl, Milwaukee, Wis.
121,255.—CAR SEAT.—A. Prier, Milwaukee, Wis.
121,256.—PRINTING PRESS.—C. W. Prouty, Charlestown, Mass.
121,257.—RENOVATOR.—S. B. Shoemaker, Willoughby, Ohio.
121,258.—LOOM HARNESS.—J. Sladdin, Lawrence, Mass.
121,259.—HINGE.—W. A. Slaymaker, Atlanta, Ga.
121,260.—WATCH.—H. R. Smith, R. Folsom, Cincinnati, Ohio.
121,261.—GUARD.—J. Edson Sweet, Syracuse, N. Y.
121,262.—SHUTTLE.—F. O. Tucker, Stonington, Conn.
121,263.—CONVERTING IRON.—L. La B. Vigor, Montreal, Can.
121,264.—CUTTING WEDGES.—N. Warner, Jasper, Ind.
121,265.—NOZZLE.—T. Watson, Nevada, Cal.
121,266.—SCREWS.—W. D. Alford, Cuyahoga Falls, Ohio.
121,267.—CULTIVATOR.—J. A., C. W. Ansley, Marengo, Mich.
121,268.—GIRTH.—S. W. Baker, Providence, R. I.
121,269.—BLOWER.—J. F. Barker, Springfield, Mass.
121,270.—WHEEL, ETC.—J. W. Beal, South Scituate, Mass.
121,271.—BUTTON.—C. F. Beardsley, Binghampton, N. Y.
121,272.—DESTROYER.—J. M. Bennett, Jaynesville, Iowa.
121,273.—HOLDER.—F. Bruns, Cleveland Ohio.
121,274.—HANDLE.—H. R. Butterfield, Vassalborough, Me.
121,275.—LIFE RAFT.—H. C. Calkin, New York city.
121,276.—STAND PIPE.—M. Coombs, Jr., Youngstown, Ohio.
121,277.—GUN.—L. Christophe, J. Montigny, Brussels, Belgium
121,278.—DOVETAIL.—A. Davis, Lowell, Mass.
121,279.—BED.—L. L. and A. J. Deming, R. Alden, Erie, Pa.
121,280.—REFRIGERATOR.—J. F. Dick, New Orleans, La.
121,281.—HORSE POWER.—H. C. Drew, Jamestown, Mich.
121,282.—SADDLE TREE.—E. H. Dunn, Portland, Me.
121,283.—LOCOMOTIVE.—R. S. Gillespie, New York city.
121,284.—PAVEMENT, ETC.—C. C. Hallock, Brooklyn, N. Y.
121,285.—WASH BOILER.—A. S. Herr, Bainbridge, Pa.
121,286.—HAND STAMP.—B. B. Hill, Springfield, Mass.
121,287.—DESK, ETC.—W. P. Hood, Winona, Minn.
121,288.—BUCKET.—F. D. Kellogg, C. N. Ives, New Haven, Conn.
121,289.—DEVELOPER.—H. P. De B. Kops, New York city.
121,290.—GRAIN BINDER.—S. D. Locke, Janesville, Wis.
121,291.—COPY HOLDER.—A. B. Manard, Rockford, Ill.
121,292.—COFFEE ROASTER.—D. D. Martin, Cincinnati, Ohio.
121,293.—SEWING MACHINE.—S. O. Matteson, Chicago, Ill.
121,294.—PAVEMENT.—C. H. Moore, Norwich, Conn.
121,295.—CARRIAGE.—E. C. Newton, Batavia, Ill.