

DECISIONS OF THE COURTS.

United States Circuit Court—Southern District of New York.

WHEEL STAMP PATENT.—THOMAS J. W. ROBERTSON VS. THE SCOMBE MANUFACTURING COMPANY.

BLATCHFORD, Judge.

This suit is brought on reissued letters patent granted to the plaintiff, December 12, 1871, for an "improvement in hand stamps," the original letters patent having been granted to the plaintiff September 22d, 1857, and extended for seven years from September 22d, 1871. The reissued letters patent are granted for twenty-one years from the 22d of September, 1857. The specification says: "My invention relates to the construction of stamps for producing an impression such as a postmark or other analogous device, a part of which requires to be frequently changed, such as the date, and part requires to remain the same, as the name of the post office. In order to give such stamps any considerable utility, the impression must be readily made and that part of the type which requires frequent change must be always on hand. This result I secure by combining in a hand stamp fixed type for producing that part of the inscription designed to be always the same, and a series of combined changeable types bearing the necessary characters to allow of any desired change, which shall be connected with and form part of the stamp. These types are connected and arranged to revolve in substantially the same manner as the combined types used in book-paging machines, but differing therefrom in having an arrangement by which the devised inscription may be printed repeatedly, without changing at each impression." [The invention covers nearly all the wheel stamp now so commonly used in banks, counting rooms, and offices, and has come in so very extensive use.]

The principal defence set up in this case is that the improvements claimed by the plaintiff in his reissued patent were previously invented by one Marcus P. Norton, of Troy, N. Y. So far as regards the contents of a caveat filed in the Patent Office by said Norton on the 21st of June, 1855, it is sufficient to say that the improvements claimed by the plaintiff are not found on the caveat. So far as regards the contents of the paper called "an additional caveat" and purporting to be dated August 21, 1855, and set up in the answer as having been filed in the Patent Office on the 25th of August, 1855, in, and with, and as a part of the said caveat filed June 21, 1855, it is sufficient to say that, after due notice to said Norton and a trial had before a commissioner appointed by the Commissioner of Patents, the said paper was in September, 1871, adjudged by the said commissioner to be fraudulent and to have been surreptitiously introduced into the caveat file of said Norton filed June 21, 1855, and that thereupon the Commissioner of Patents endorsed on said paper a memorandum signed by him, that said paper does not form a valid portion of said caveat.

There remains as evidence in the prior existence, in fact, as completed inventions, made by Norton, of the plaintiff's improvements. As to this the burden of proof is on the defendants, and they do not establish the fact satisfactorily. Norton's own evidence is manifestly not to be relied upon. The circumstances attending the taking of his deposition in this suit, the contradictions in sworn statements he has made at different times regarding the alleged caveat, and the manner in which, as shown by the record, he caused witness to be sworn to matters of which they had no recollection, make it impossible to rely on his testimony.

But the evidence of Norton and that of the other witnesses for the defendants shows nothing done by Norton, prior to the plaintiff's invention, which amounts to more than an unsuccessful experiment. The plaintiff made the first successful practical working machine.

The infringement of the patent is admitted. There must be a decree for the plaintiff, for a perpetual injunction, and an account of profits, and an ascertainment of damages and costs.

Frederick H. Batts for plaintiff.

Nelson Cross for the defendants.

[We understand that the Chamberlain Manufacturing Company, No. 10 Courtland street, New York, and N. L. Chamberlain, Boston, Mass., have purchased the exclusive privilege of working this patent, to whom application should be made for further information.]

Inventions Patented in England by Americans.

(Compiled from the Commissioners of Patents' Journal.)

From February 21 to February 27, 1873, inclusive.

CHEMICAL TELEGRAPH.—T. A. Edison, Newark, N. J.
 JOURNAL BOX.—S. W. Wilson, Philadelphia, Pa.
 LOCOMOTIVE BLAST.—C. B. Knowles, J. E. Saunders, Nashville, Tenn.
 PERCUSSION CAP, ETC., MACHINE.—A. Payne, Bridgeport, Conn.
 PRODUCING COMBUSTION.—B. F. McCarty, F. F. Olds, F. H. Mason, Cleveland, Ohio.
 TYPE WRITING MACHINE.—E. Densmore, Meadville, Pa., C. H. Farnham, Milton, N. Y.

NEW BOOKS AND PUBLICATIONS.

THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1873 is an invaluable condensation of the newest and best things in the beautiful art. It contains 160 pages, full of useful suggestions and fresh information which every photographer ought to possess. London: H. Greenwood. New York: Milner & Rogers.

HOW SHALL I INTRODUCE MY INVENTION?

This inquiry comes to us from all over the land. Our answer is: Adopt such means as every good business man uses in selling his merchandise, or in establishing any business. Make your invention known, and if it possesses any merit, somebody will want it. Advertise what you have for sale in such papers as circulate among the largest class of persons likely to be interested in the article. Send illustrated circulars describing the merits of the machine or implement to manufacturers and dealers in the special article, all over the country. The names and addresses of persons in different trades may be obtained from State directories or commercial registers. If the invention is meritorious, and if with its utility it possesses novelty and is attractive to the eye, so much the more likely it is to find a purchaser. Inventors, patentees, and constructors of new and useful machines, implements, and contrivances of novelty, can have their inventions illustrated and described in the columns of the SCIENTIFIC AMERICAN. Civil and mechanical engineering enterprises, such as bridges, docks, foundries, rolling mills, architecture, and new industrial enterprises of all kinds possessing interest can find a place in these columns. The publishers are prepared to execute illustrations, in the best style of the engraving art, for this paper only. They may be copied from good photographs or well executed drawings, and artists will be sent to any part of the country to make the necessary sketches. The furnishing of photographs, drawings, or models is the least expensive, and we recommend that course as preferable. The examination of either enables us to determine if it is a subject we would like to publish, and to state the cost of its engraving in advance of its execution so that parties may decline the conditions without incurring much expense. The advantage to manufacturers, patentees and contractors of having their machines, inventions, or engineering works illustrated in a paper of such large circulation as the SCIENTIFIC AMERICAN is obvious. Every issue now exceeds 45,000 and will soon reach 50,000, and the extent of its circulation is limited by no boundary. There is not a country or a large city on the face of the globe where the paper does not circulate. We have the best authority for stating that some of the largest orders for machinery and patented articles from abroad have come to our manufacturers through the medium of the SCIENTIFIC AMERICAN, the parties ordering having seen the article illustrated or advertised in these columns. Address
 MUNN & Co., Publishers,
 37 Park Row, N. Y.

Recent American and Foreign Patents.

Improved Spindle Bolster.

James Barnes, Holyoke, Mass., assignor to himself and James Woodhouse, of same place.—This invention consists of a long tubular cup with a hole in the bottom, in which the spindle is fitted tight. A metal cap is arranged in the bolster rail, within which the upper end of the cup, which turns with the spindle, has a bearing. The cap has a tubular extension from the hole through which the spindle passes, fitting into the cup at the top.

Improved Machine for Planing Clapboards.

James Atkins, Augusta, Me.—This improvement relates to that class of machines which plane the side of the clapboard and joint the thickness at the same time, and has for its object the feeding of the boards so that the jointing of the edge straight will be secured, and the feeding of the board and planing of the surface in the most perfect manner will be insured. It consists in an arrangement of heavy feed rolls geared together in pairs, as in ordinary surface planers, but with a series of spurs on each lower roll of the pair, and an adjustable arrangement of the lower rolls for causing them to correspond exactly to the inclined surface of the bed of the machine, whereby the said objects are secured.

Improvement in Stereotype Blocks.

Wm. Schnauffer, Baltimore, Md.—This invention consists in divided stereotype plate blocks, each division having a pair of supports so as to enable all to be capable of being used separately or in connection with each other.

Improved Burglar Alarm.

Henry L. Brower, New York city.—This invention consists of a small, light, portable, and ornamental alarm or call bell, so contrived that the devices for restraining or holding the clock mechanism (used for actuating the bellhammer) in check will be caused to release the said mechanism and allow it to act, if the alarm be lifted from the table or other support, or if a knob be lifted or pulled, or turned to the right or left. It may be used for a burglar alarm by attaching small threads or cords to the knob, and arranging said threads so that the opening of a window or door, or the passing through an open door or window by a person will, by his coming against the cords or threads, pull the knob or turn it, and thereby set the alarm in motion; also, for a fire alarm by having weights or springs, let go by the burning of the threads to pull or turn the knob and liberate the sounding mechanism.

Improved Tool for Laying Tile.

George W. Nevill, Richmond, Va.—This invention consists in a tool formed of two adjustably connected tubes on which the tiles are held firmly while being carried into the ditch, and from which they may be then readily detached. The advantages of this tool are that the operator is enabled to lay the sectional tiles by means of a level, or otherwise, at a regular and more uniform pitch; to lay a line of tiles with much greater accuracy, with far greater rapidity and with an economy of at least 50 per cent in the cost.

Improved Sewing Machine Table.

James W. Cheney, Detroit, Mich.—This invention has for its object to furnish a simple and effective method of connecting the cover of a sewing machine table to the edge of the same for forming an extension thereof when not used as a cover for the operative mechanism. The invention consists primarily in the employment of a hooked or curved plate applied to the under side of the cover and interlocking with a slotted plate secured to the edge of the table for forming a detachable fastening device which will cause the cover and table to be flush or even with each other when arranged in position. The invention also consists in the provision of a hinged supporting arm applied to a pendant bracket secured to the table, for maintaining the cover in its proper position when used as an extension leaf. The invention also consists in combining with the hinged supporting arm and bracket a pair of spring jaws for securing the hinged arm when it is turned into a vertical or inoperative position.

Improved Railroad Train Indicator.

Samuel W. Hemenway, Lansing, Iowa.—This invention consists of one or more miniature ways constructed on a scale proportioned to the real railway as to the stations and distances between them, with the time of starting from the end and the time the trains are due at the stations marked on posts; also blocks representing cars and a screw, with each way, for actuating them. The screw is worked by a clock, so that a block being put on the track at the time for the starting of a real train will show to the eye the position of the train on the railway at any time during the trip.

Improved Plow.

James R. Nichols, Bastrop, Texas.—The invention consists in a plow cutter having a bend at one end, sharpened at the other and perforated at different points, to adapt it to be used with a sweep or plow.

Improved Candlestick.

Charles H. Doughty, Newburgh, N. Y.—This invention consists of an open socket for the candle formed by the vertical edges of four thin plates radiating from a common center, but sufficiently distant from the center that in pressing the candle down between them, they will cut or press into the sides and hold it fast. Three or more of the plates may be used. At the bottom of the socket the said plates extend to the center. The object is to provide a candlestick which cannot fill up in the socket by melted tallow or wax, and by which the lifting of a pusher to expose the light is avoided when the candle is nearly burned to the bottom.

Improved Paint Brush.

Philip Wagner, New York city.—This invention relates to a new extension brush case. The top or bridge of the brush holder, which is usually soldered flat upon the upper edge of the face plates, is, in this invention, provided with side flanges. The bridge thus made is sprung over the top of the case and fastened by solder, and will then and by the aid of its flanges be held firm and secure. The lower part of the case is made movable up and down, and can be fastened by a screw at suitable height. This slide or sleeve is made of metal or other hard material, and will, when set down, shorten the working part of the hairs, or lengthen them when moved up. The paint or varnish will be arrested by the lower edge of the extension, and cannot enter within such extension. For thicker varnish or paint the sleeve is moved down; for thinner material it is set up, and also when the hairs are worn short.

Improved Grain Binding Harvester.

Charles F. Goddard, St. Ansgar, Iowa.—This invention has for its object to furnish an improved harvester, which shall be so constructed as to cut the grain, rake it into gavels, and bind it. In using the machine one end of the straw band is attached to an arm. The other end of the band is passed around a hook and secured in the spring jaw in the end of the short arm of a crosshead, placing the band being all the attendant has to do. As the rake moves forward it pushes the gavel over the arm and raises said arm into a vertical position. As the rake head rises and moves back a lever is operated, which turns the crosshead around one and a half times, twisting the band. As the crosshead completes its movement its long arm strikes and pushes back the hook, which catches the end of the band and draws it through said band. At the same time the spring jaws of the crossheads strike against stops, which open said jaws and release the bands, and the bound bundle drops to the ground. As this operation is completed the lever slips from a pin and the spring draws it back, which turns the binding device back into its former position ready to receive another band.

Improved Sulky Plow.

William Ough, Orlon, Ill.—This invention consists in means for raising, lowering, and holding the frame which sustains the plows, and thereby graduating the depth of furrow which is to be cut by the latter. The device can thus be used in almost every kind of soil. By connecting both ends of the plow beam with the lever, it is raised and lowered in a level position, or nearly so, moving the plow up and down, which is much easier than drawing it diagonally through the soil, as is usually done.

Improved Butter Bucket.

John F. Dumont, Kansas City, Mo.—This invention consists in forming an air tight butter bucket in three easily detachable parts so that it can be speedily subdivided and all portions thereof nicely and thoroughly cleaned, also in the particular mode of clamping these three parts together and of locking and unlocking them.

Improved Ditching Machine.

George W. Nevill, Richmond, Va.—This invention consists in means for enabling the vehicle to turn in a small circle at the end of ditch, or when it becomes necessary, and after cutting one layer of earth to return and cut another; also in means for enabling the flanged soil-carrying wheel to adjust itself both laterally and vertically in an easy and non-frictional manner to the inside of ditch; and finally, in means for supporting the ditching wheel frame in its true position while the front axle may move independently of it, and vice versa.

Improved Substitute for India Rubber.

Dr. Elbert H. Rogers, Tuscaloosa, Ala.—This invention consists in the process of obtaining rubber pulp from bamboo and other berries by first expressing the juice, secondly, drying the hull, pulp, and seed in a mass, thirdly, disintegrating said pulp, hull, and seed by trituration, and finally separating the pulp therefrom by a fan.

Improved Furnace for Melting Brass and other Metals.

Ira D. Bush, Detroit, Mich.—This invention consists of a rotating grate frame, constructed and arranged in a furnace. The furnace is supported in the frame on trunnions. The improved grate frame or plate is confined to the under side of the furnace bottom on a central pivot and pin. There are three, more or less, air ports in the bottom of the furnace one for each space or compartment in the furnace between the partitions. Each of these apertures is provided with a removable grate, either attached to or cast with the rotating grate plate or frame. By turning the plate the grates are readily removed from the air ports, which allows cinders and refuse to be discharged during the process of melting.

Improved Railway Dust Preventer.

John Wellby, Frederickton, Canada.—This invention consists in a dust shield for cars, carriages, and other vehicles. It is a frame made with close triangular ends, which is designed to be secured to the lower part of the car body, and which should project downward so as to be as close to the ground as practicable. To the upper parts of the ends of the frame are pivoted the journals of a roller, to which is attached one edge of a canvas screen, the lower edge of which, when unrolled, is designed to be secured to the lower bar of the frame, so that by detaching the lower edge of the screen or blind it may be rolled upon the roller to give convenient access to the wheels when desired. The end screens consist of a frame covered permanently with a cover of wood or thin sheet iron, and should project so that the end screens of adjacent cars may come as near each other as practicable without danger of being broken.

Improved Bread Worker.

Joseph H. Balderston, Colona, Md.—This invention has for its object to furnish a machine for working or kneading bread. In using the machine the bread, mixed to the proper consistency for working or kneading, is placed in the closed end of a box. The lever is then moved up and down and actuates arms to the ends of which balls are fastened. The effect of this is to cause the dough to revolve toward said balls, so that by continuing the operation a short time the dough will be thoroughly worked.

Improved Apparatus for Loading and Unloading Hay.

George W. Long, Delaware Center, Iowa.—This invention has for its object to furnish an improved device for unloading hay, corn in the ear, etc.; it is simple in construction and is said to be effective in use. The invention consists in the combination of the sling, the ropes attached to it, the block, crank shaft, lock and trip latch and trip rope with each other. Two timbers of a length about equal to the length of the hay rack are connected by a number of small ropes of such a length that when extended across the hay rack the timbers may hang down at its sides. To one of the timbers is suitably attached the end of a rope, the other end of which is left free. To the other timber, at equal distances from its center, are attached the ends of another rope, upon the center of which is formed a loop or eye to receive a hook attached to the pulley upon the hoisting rope. The same rope passes through holes in the sides of a block in the middle part of which is formed a large hole or opening, across which extends a shaft to one end of which is attached a crank. A catch and lever is arranged to hold the crank in any desired position. In using the device, a sling is extended upon the wagon rack, the load is built upon it, and the loaded wagon is drawn upon the barn floor, to the side of the stack, or to any other place where the load is to be unloaded. The end of the rope first mentioned is then attached to the shaft on the block to wind the rope upon the shaft. When the sling has been drawn sufficiently tight about the load the latch is adjusted to catch upon the crank to lock it, and the hoisting rope is drawn upon to raise the load and carry it to the desired place. When the load is brought over the place where it is to be deposited, the trip rope is drawn upon to withdraw the latch and release the crank and shaft, allowing the rope to unwind and the load to drop.

Improved Awning.

John Boyle, New York city.—The invention consists in the mode of applying tension rods to awnings. To the ends of the main rod are attached the sockets or couplings to which the brackets are fastened. To the sockets are attached, or upon them are formed, two eyes. Two strengthening or straining rods, which are passed through the eyes, are drawn taut by nuts screwed upon one or both their ends. Bridges are used, according to the length of the rod, and are made with two arms, through the outer ends of which are formed holes for the passage of the straining rods. The eyes and bridges are so arranged that one of the rods may be below the main rod to resist the downward pressure, and the other upon the inner side of said rod to resist the inward pressure.

Improved Bed Bottom.

Benjamin Holmes, 95 Grand Street, New York city.—This invention relates to the construction of spring bed bottoms. Double conical springs are attached by straps to the slats of the frame. Each spring has two fastenings, one on each side of the slat. By making the slats of the proper width and arranging the springs upon either side, the requisite number of springs is distributed uniformly and so that each may bear its proper proportion of the weight. The springs are held at top and bottom by twine or cord, arranged in the usual manner, with a border band of rattan or wire surrounding them and forming the boundary of the bottom. The bottom is incased in strong cloth with cotton batting in the sides.

Improved Oscillating Chair.

William T. Doremus, 266 Canal Street, New York city.—This invention has for its object to furnish an improved chair, which shall be so constructed as to yield to the weight of the sitter as he sits down and leans back, thus relieving him from encountering the rigid resistance found in sitting upon an ordinary chair. Bars are placed at either side of the chair, the upper ends of which are pivoted to the chair seat by a pin passing through the said bar and into the said seat. The lower part of each bar passes down through the pedestal and has a nut screwed upon its lower end. Rubber springs are placed between the back parts of the pedestal and seat. By this construction, when a person sits down upon the chair his weight compresses the springs, and at the same time slightly inclines the chair seat to the rearward which inclination may be increased by leaning back heavily against the chair back. The front part of the pedestal is provided with a stop to receive the forward part of the seat when said seat is allowed to come into its ordinary position.

Improved Oil Still.

Emil Schalk, New York city.—The retort or still, in which the oil is to be heated, has a large passage through it from side to side between the bottom and top, so that a chamber is preserved below and another above, also spaces at the sides for the oil to be distilled; through this passage are arranged vertical tubes as close together as will best promote the direct application of the heat which passes through the still to the oil, which circulates through the tubes, and not obstruct the draft. The oil enters the lower chamber at the pipe where the heat is lowest and the residue escapes from the upper chamber where the heat is greatest. The tubes, being vertical and having a large chamber below, will not be obstructed by the accumulation of impurities.

Improved Torpedo.

Charles Nelson, East New York, N. Y.—This invention consists of a torpedo in which the fulminate is separated from the powder, gravel, and other filling, and inclosed in a paper sack and fixed on the center of the paper wrapper. It is thus placed at the bottom part of the completed torpedo. It is either inclosed in one wrapper, or in a package of two or more plies of strong paper. The fulminate is placed at the bottom, and the whole, including an exterior thin fancy colored paper, is folded over the powder and secured by twisting together and gumming the twisted parts. The object is to guard against explosion by concussion of the sides of the torpedo, and to provide a wrapper or case that will not break open easily when subject to concussion, as the torpedo does now make do to such extent that if one in a mass or package explodes the whole will be fired.

Improved Sofa Bedstead.

James K. Stockton, New York city.—This invention relates to a new sofa bed, and has for its object to permit the use of short frames and cushions for such purpose. The seat of the sofa, having projecting pins or trunnions, is pivoted thereby to the frame so that it can be entirely revolved. To the front of the seat is hinged a cushioned frame of similar extent, which in the sofa is folded under the seat. To the back of the cushioned frame is hinged the sofa back, which is cushioned on both sides. A plate of wood is placed into the back of the sofa, projecting outwardly and forming a recess for the admission of the cushion. When the sofa is to be transformed into a bed, the back is carried forward, the seat completely revolved on its pivot, and the cushion thereby brought forward of the seat. Legs, sliding in recesses of and pivoted to projecting arms fastened to T-shaped pieces, are drawn out and turned down for the support of the cushion. A foot board is folded up till it rests on the projecting extension of legs. Clutches, applied to the sides of the cushion, are turned up and hold the foot board firmly pressed against the legs, stiffening them and producing a stable support to the cushions. In this manner a bed is completed whose length is obtained by the successions of these several cushions.

Improved Steam Generator.

Patrick J. McMahon, New Orleans, La.—An ordinary vertical tubular steam boiler is employed with a superheater above the upper tube sheet, through and around which the products of combustion pass on their way to the chimney. Into the bottom of a tank or reservoir, which is nearly filled with water, a steam pipe leads from the steam space of the boiler. The horizontal portion of said pipe is perforated, and extends nearly or quite the length of the reservoir near the bottom. Another pipe leads from the dome to the superheater with which it is connected. An overflow pipe connects with the boiler at the surface of the water therein, and discharges into the first mentioned pipe. The reservoir is provided with an independent force pump for its own supply. The water to supply the boiler is taken therefrom. When steam is generated it will be discharged into the reservoir through the pipe, and will escape into the water through the perforations and be condensed. The heat thus generated will be absorbed by the water, which will soon become heated. As the pressure increases in the boiler it will increase in the reservoir, and the steam generated in the reservoir escapes into the dome and to the superheater, whence it is conducted into the engine. The steam pipe is always open, and consequently any great or sudden accumulation of steam in the boiler will be absorbed by the water in the reservoir. This large body of water will therefore store up such heat and power and act as a balance wheel to equalize the action of the boiler. From this arrangement it will be seen that a sudden evaporation in the boiler cannot cause a sudden increase of pressure, and also that a sudden demand for power will not suddenly reduce the pressure.

Improved Bed Bottom.

Peter Boesen and Michael Bedessem, Kenosha, Wis.—The upper bed bottom frame is supported on spiral springs and covered with canvas or other fabric, which also rests on springs. The springs at the ends of the bed rest upon a frame, but at the middle of the bed they rest upon a suspended frame which is hung by and moves loosely upon rods extending down from a frame above. Braces are arranged which form yielding crossed supports for the bed bottom, and serve to steady and equalize the downward and upward motion of the same, so that if, for example, one side of the bed is being depressed only, such depression will still leave the bed level, and not cause it to become inclined to the weighted side. When the bed is weighted in the middle the springs at rest in the frame will be less compressed, because they have no immovable support, as those springs which rest on main frame and will therefore make the middle of the bed softer and more perfectly elastic than the sides.

Improved Barber's Chair.

Adam Schwaab, New York city.—This invention has for its object to improve barbers' chairs. The chair operates easily, as the occupant adjusts the inclination of the back to suit his own comfort by pressing with the body on the upper part, the segment shape above the pivots giving a more extended rest for the body. As soon as the shaving process is completed and the person sits up, the barber lifts the levers from the ratchets and places the back in an upright position between the hind legs. The arms remain stationary, the back performing the same motion which in the old chairs is accomplished by the combined back and arms pivoted to the front legs.

Improved Car Ventilator.

John J. Crowley, Whistler, Ala.—This invention consists of two ventilating pipes, a fan blower, a conducting pipe, a distributing pipe, and a system of valves, all combined in a car in such manner that the fan blower, which is driven by a belt from a pulley on one of the car axles, will force a blast of air into the car, no matter which way it runs, it being only necessary to shift the valves when the direction of the movement of the car is reversed.

Improved Iron Bridge.

William B. Cooper, Albany, N. Y.—The object of the invention is to enable bridge builders to construct the tubular arches of iron bridges in sections so that the arches can be transported and put in place without difficulty, and so that the parts can be put together and adjusted without previous boring or fitting. The block or connecting section is a shell, made in two parts, divided longitudinally and vertically in its center. This shell is open on the under side to admit the eyes on the ends of the braces, which eyes are secured to the shell by means of a bolt through the latter. On each end of the shell is a circular flange, a semicircular half being cast upon each half of the shell, which flanges enter the ends of the sections of the arch. The ends of those sections or tubes consequently bear against the ends of the shell or block, and the ends of both are beveled with reference to the curve of the arch. When the connection is made and the parts put in place the latter are expanded by means of one or more keys, a groove being cast in each of the parts to receive the keys. The flanges are thus made to bear against the insides of the tubes and make the connection firm and rigid.

Machine for Stiffening Netting for Bonnet Frames, etc.

Peter C. Ritchie, New York city.—The top bars of the frame are provided with small hooks, upon which the edges of the mosquito net or foundation are hooked. A box, in which the stiffening mixture is placed, slides back and forth in ways in a frame. A roller revolves in bearings attached to the middle part of the ends of the box and is covered with several thicknesses of a coarse cloth which takes up the stiffening mixture from the box or trough and transfers it to the mosquito net or foundation as the said box is drawn back and forth beneath it. The roller is revolved to apply the stiffening mixture to the mosquito net or foundation by the movement of the box or trough. A bar or scraper is arranged in such a position as to remove the surplus stiffening mixture that may be raised by the roller, and thus prevent more than the proper amount of said mixture from being applied to the mosquito net or foundation.

Improved Paddle Mechanism for Boats.

Charles Howard, New York city.—This invention relates to an improvement on the "improvement in paddle mechanism for boats," which was patented March 19, 1872, No. 124,746. The present improvement consists in attaching the upper end of the paddle directly to the pin or wrist of the upper or short crank instead of having an intervening arm or connecting rod extending from said short crank to the upper end of the paddle, as in the aforementioned letters patent. The lower or long crank is, as before, connected to the paddle near its middle. The paddle shank, provided with a slot or guide, by which the paddle is allowed to slide up and down on the pin or wrist of a crank in such a manner as to allow two cranks, of different lengths, to be attached to the paddle.

Improved Cultivator.

William Taylor, Mansfield, Mass.—This invention is an improvement in the class of cultivators for corn, potatoes, and analogous crops, which have hinged adjustable wings or sections. To the rear edge of the inclined sides of the hoe plow are hinged the forward ends of the wings or plates, the lower edges of which are concaved to give the desired form to the hills. To the inner sides of the rear parts of the wings are pivoted the outer ends of the two bars, the inner ends of which are pivoted to a block that slides back and forth in a longitudinal slot in the rear part of the plow beam, so that the wings may be spread apart or drawn toward each other by adjusting the position of the said block. To one of the rounds of the handles is pivoted a lever, the lower end of which is connected with the sliding block, and its upper end projects into such a position that it can be conveniently reached and operated by the plowman to expand and contract the wings, and by suitable mechanism it is held securely in any position into which it may be adjusted.

Improved Harvester.

Alexander Rickart, Schoharie, N. Y.—The invention consists in an improvement upon the usual means for throwing in and out of gear the mechanism which drives the cutter bar. The drive wheels are connected with the journals of the axle by pawls and ratchet wheels. To the axle, at the inner side of one of the drive wheels, is secured a large gear wheel, which meshes into the teeth of a small gear wheel attached to a shaft which revolves in bearings attached to the frame. To the forward end of the shaft is attached a small crank, to the crank pin of which is pivoted the end of the pitman, the other end of which is pivoted to a sickle bar that slides upon the finger bar in the ordinary manner. To the rear part of the platform or frame are attached bearings which receive the axle, and which are so formed as to slide longitudinally upon the said axle so that the gear wheel may be thrown into and out of gear with the other gear wheel by sliding the said frame or platform upon the said axle. A pin, having a hole through its

base for the passage of the axle, is kept from sliding upon said axle by a collar secured to it, and to the pin is pivoted a lever, having a double cam formed upon it. The double cam works between studs formed upon or attached to the frame so that the said platform may be moved in one or the other direction to throw the gear wheel into and out of gear with the other gear wheel. The space between the shoulders or studs is made a little wider than the double cam, and in it, along one of said shoulders or studs is placed a bar or arm, the lower end of which is secured to the platform or frame, and its upper end is left free. The bar or arm is held forward against the double cam by a set screw, which screws through the shoulder or stud along which the bar or arm is placed, so that by turning the said screw forward the wear may be taken up.

Improved Railway Snow Plow.

Peter A. Smith, New York city.—This invention consists in a plow made V shaped, the rear parts of which are bent inward so as to be parallel with each other and directly over the rails of the track. The walls of the plow are made double to form chambers. With the chambers are pipes communicating with the steam drum, or with the exhaust of the engine, to enable steam to be introduced into the said chamber. In the outer plate of the plow are formed a number of small holes, through which the steam blows upon the snow. The rear or parallel parts of the plow have a number of small holes in their bottoms, through which the steam may blow upon the rails to remove any snow or ice that may adhere to said rails.

Improved Shoe Brush.

George Wale, Hoboken, N. J.—This invention has for its object to furnish an improved shoe brush which shall be so constructed that the blacking may be applied to the shoe, and the shoe polished, without its being necessary to touch the box of blacking, or anything but the handle of the brush. In the brush for applying the blacking is formed a channel, leading in through the rear edge and out through the center of the brush, side of its stock. This latter opening is closed by a valve attached to the end of a lever, which is pivoted to a plate attached to the edge of the stock of the brush over the hole in said edge. The plate has a hole formed through it directly opposite the hole in the brush stock, and of a less diameter than said hole. The box to contain liquid blacking is made close, and with a small tube in one end. The tube has several small holes formed in its sides, and its outer end is closed with a cork. Upon the tube is placed a piece of rubber pipe, which, when the tube is pushed into the hole through the plate, is pushed back by said plate so as to uncover the holes in the said tube and at the same time serve as a packing to prevent the blacking from leaking out between the tube and plate. The box is kept from slipping outward by a flange. A plate is placed at such a distance above the back of the brush that the box may be readily slipped into place beneath it. The ends of this plate are bent downward at right angles, and are attached to the side edges of the brush, and to it is fastened the handle. The plate and the forward part of the handle receive the rear part of a lever which is so formed as to press down upon the box or upon the spring when the said lever is operated, so that the valve will be opened and the box compressed by the same operation of the lever to eject the blacking into the brush.

Improved Sawing Machine.

Hugh A. Current, Clarksville, Tenn.—The saws are so placed in respect of the transverse direction of the machine as to divide the pieces of wood in about three pieces, and one is placed behind the other for dividing the labor. A wide endless carrier belt of leather is placed outside of each saw, and a couple of narrower carrier belts are arranged between the saws. These belts all work over rollers at the ends of the frame and carry a number of long, curved clamp fingers, which are mounted on curved plates so shaped that they will pass over the rollers readily. The fingers project forward and are drawn down toward the belts when they are passing between the rollers, so as to clamp the sticks of wood and hold them firmly; but as they come up over the rollers from below they project upward so as to allow the wood to be placed immediately in front of them so that they will come down on, and clamp it fast. Rails or ways are made alongside of the belts, whereon the wood pieces are moved to and from the saws. Intermediate supporting rollers may be employed, as required to support the belts. The saws are arranged to be adjusted on the mandrels so they can be shifted to saw the pieces in different lengths.

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

HOW TO OBTAIN Patents. This is the closing inquiry in nearly every letter, describing some invention which comes to this office. A positive answer can only be had by presenting a complete application for a patent to the Commissioner of Patents. An application consists of a Model Drawings, Petition, Oath, and full Specification. Various official rules and formalities must 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 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 1836 will be furnished for \$1.

When ordering copies, please 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 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.

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