

The qualifications for high and responsible positions are various as the positions themselves; and a man may often possess brilliant talents, and yet lack some apparently minor but all essential endowment or acquirement without which a particular place must be forever inaccessible to him. It may be accuracy, it may be a reputation for probity, tried and tested by service in other subordinate but responsible positions, or judgment matured by experience; whatever it is it must be acquired before he can reasonably expect corresponding promotion. If a young man feels that he possesses the necessary ability for success in learned professions, yet lacks the courage to endure the self-denial which is usually to be expected at the outset of a career in any of them, he is small potatoes, and will probably go through life with the feeling that he might have made some noise in the world had not cruel destiny been so unfavorable to his youthful aspirations. So if a young man lacks courage to live within his income, and allows himself to become a slave to debt, he is small potatoes, and the chances are much against his ever being anything else. As a straw at the source of a river may change its current, so a single act at the outset of business life may direct its entire course. Only the greatest minds can reclaim a misdirected life, and secure success in spite of the lost opportunities, and accumulated difficulties resulting from it.

We do not believe that men often fail to reach their proper level; and it is fair to infer, that, when a person is found at mature years occupying a very inferior position, that there was something about him that made him small potatoes. The exceptions to this, if there are any, only prove the rule; and it may be said to be as certain as any principle in business can be, that, in any profession, good ability, close application, and patient courageous effort, during the day of small things, will ultimately be rewarded by success.

IMPROVEMENT IN WATER WHEELS.

It is rare that it falls to our lot to notice a patent so simple and so obviously useful that it can be fully described without engravings. In this case, however, we are enabled to do this, as the improvement does not relate to the general structure of water wheels, but only to the prevention of the oxidization of iron wheels, without reference to their form, and also to the reduction of the friction of the water upon the working parts of such wheels. The improvement is the invention of Mr. James P. Collins, of Troy, N. Y., and consists in enameling all portions of any water wheel exposed to the action or force of the water with some suitable material, or combination of materials, thereby giving a smooth and glazed surface, over which the water flows with greatly diminished friction, of course adding proportionally to the efficiency of the wheel. It is obvious, also, that all chemical action of the water must be entirely prevented by such a coating. The patent upon this improvement does not limit the inventor to any particular silicious substance or combination of substances, and he is at liberty to use any materials for the purpose above described that he may find upon experiment to be useful. The inventor does not intend to confine the application of this improvement to the wheels of his own manufacture, but will dispose of rights to manufacturers of water wheels throughout the United States. All applications should be made to J. P. Collins, Troy, N. Y.

The New English Ironclad.

The shipwrights at Chatham dockyard, England, commenced laying the blocks and ways for the new armor-clad turret ship *Glatton*. An exchange says, "The drawings and plans received at Chatham dockyard from the Admiralty, show the *Glatton* to be a vessel of 2700 tons burden, with a length of 245 feet, and a breadth of beam of 49 feet. It is, however, in her armor plating that she will surpass in defensive powers every ship yet constructed; it being intended to plate her with armor 12 inches in thickness along her most exposed parts, while on her turrets the *Glatton* will carry armor 14 inches in thickness, laid on a 10-inch backing of teak, with the usual inner "skin" plating. Unlike the *Monarch*—the deck of which is encumbered with a topgallant forecastle—the single turret of the *Glatton* can be directed towards every point of the compass. Her offensive will, at the same time, be on a par with her defensive powers, it being intended to arm her with a couple of 25-ton guns—the most formidable armament yet given to a vessel of war.

What Breaks Down Young Men.

It is a commonly received notion that hard study is the unhealthy element of college life. But from tables of the mortality of Harvard University, collected by Professor Pierce from the last triennial catalogue, it is clearly demonstrated that the excess of deaths for the first ten years after graduation is found in that portion of each class inferior in scholarship. Every one who has seen the curriculum knows that where Eschylus and political economy injures one, late hours and rum punches use up a dozen; and that the two little fingers are heavier than the loins of Euclid. Dissipation is a swift and sure destroyer, and every young man who follows it is, as the early flower, exposed to untimely frost. Those who have been inveigled in the path of vice are named "Le gion," for they are many—enough to convince every novice that he has no security that he shall escape a similar fate. A few hours of sleep each night, high living, and plenty of "smashes," make war upon every function of the human body. The brains, the heart, the lungs, the liver, the spine, the limbs, the bones, the flesh, every part and faculty, are over-taxed, worn, and weakened, by the terrific energy of passion loosed from restraint, until, like a dilapidated mansion, the "earthly house of this tabernacle" falls into ruinous decay. Fast young man, right about!

Singular Optical Effect of Certain Sounds.

A correspondent from Michigan writes, that whenever he hears sounds of a certain bell in his neighborhood, he experiences a sensation of flashes of light, or, rather, shadows, which, upon the ceasing of the sounds, give the effect of flashes of light upon the eye. The phenomena are doubtless to be referred to reflex nervous action. The sense of sight is more liable to such reflex effects than any other, often being affected by disturbances in remote organs, as, for instance, the stomach. Instances are on record where sight was so depraved by disordered digestion, that apparitions of people, distant places, etc., were seen by the patient, these symptoms entirely disappearing upon the removal of the disturbing cause.

JAPANESE PAPER.—The Japanese manufacture and use paper to as great an extent as perhaps any other nation. There are very few of their industrial operations that do not involve the use of this material. Both for ornamental and useful purposes it seems to be the *sine qua non*. Fans, lanterns, umbrellas, pocket handkerchiefs, cloaks, and windows are made of it. The paper strings and hats lately introduced into this country have been in use for centuries in Japan.

OFFICIAL REPORT OF PATENTS AND CLAIMS
Issued by the United States Patent Office.

FOR THE WEEK ENDING SEPTEMBER 1, 1868.

Reported Officially for the Scientific American.

PATENTS ARE GRANTED FOR SEVENTEEN YEARS, the following being a schedule of fees:—

On filing each caveat.....	\$10
On filing each application for a Patent, except for a design.....	\$15
On issuing each original Patent.....	\$20
On appeal to Commissioner of Patents.....	\$20
On application for Reissue.....	\$30
On application for Extension of Patent.....	\$30
On filing a Disclaimers.....	\$5
On filing application for Design (three and a half years).....	\$10
On filing application for Design (seven years).....	\$15
On filing application for Design (fourteen years).....	\$30

In addition to which there are some small revenue-stamp taxes. Residents of Canada and Nova Scotia pay \$500 on application.

Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to Inventors, may be had gratis by addressing MUNN & CO., Publishers of the Scientific American, New York.

81,572.—FLEXIBLE PIPE-JOINT COUPLING.—Squire Ainsworth, Pittsburg, Pa.

I claim, 1st, A pipe connection, consisting of a conical recess in the end of one pipe, and a trunion of a cone at the termination of the end of the other, said pipes being so held together, by a clamp or other means of support, as to permit the rotary movement of one or both of the said pipes without variation from the plane of said movement, all as and for the purpose heretofore described.

2d, In combination with the foregoing, the spring-hinged coupling nut constructed substantially in the manner described, for the purpose specified.

3d, The chain, G, in combination with the spring coupling, C', substantially as and for the purpose set forth.

81,573.—RAILWAY CHAIR.—Samuel T. Alexander, Pittsburg, Pa.

I claim a railroad chair, composed of a bed plate, A, and movable clamping pieces, substantially as and for the purpose set forth.

81,574.—HAND MILL.—Eow n Aisop, New York city.

I claim the arrangement, herein described, of the vertical shaft, F, removable grinding cone, H, tapering cylinder, I, corrugated vertically on its inside bottom, J, screw, L, cylinder, K, with discharge orifice, E, wrought-iron frame, A, screw pipe, G, shaft, C, by wheel, B, and bevel gearing, D, E, for the purpose set forth.

81,575.—MACHINE FOR MAKING BARRELS.—Saxton J. Arnold, New York.

We claim the adjustable flanged cone-shaped hubs, C, when provided with twisting pins, F, and springs, F, in the flange, E, in combination with the cone-shaped nuts, G, and screw shaft, A, as herein shown and described.

81,576.—NON-CORROSIVE VALVE SEAT.—E. H. Ashcroft, Boston, Mass.

I claim, 1st, An alloy of nickel and copper, in any proportions, as set forth, for the construction of valves or valve seats for steam, &c.

2d, An alloy of iron and silver, in any desired proportions, for the construction of valves or valve seats for steam, for the purpose set forth.

3d, An alloy of aluminum, or aluminum alone, for the construction of valves or valve seats for steam, for the purpose set forth.

81,577.—MACHINE FOR COVERING CORD.—John Bachelder, Norwich Conn.

I claim, 1st, The miter gears, a' a', central shaft, C, supports, A1 A2, bobbin gears, d1, covering-cord carriers, F, guide, J, and gears, I, L, in combination, a d operating so that each thread of a strand is covered with finishing material, and the several strands thus covered, twisted, the finishing material being laid on a converse direction to the twist imparted to the respective strands, all substantially as set forth.

2d, The shaft, e, gears, a', a', shaft, C, sleeve, e', and pinions, c, d, stationary support, A1, geared spool-carrying plates, d1, support, A2, gear, D, covering-cord carriers, F, and guide, J, combined and operating substantially as and for the purpose set forth.

3d, The combination of the above, the winding-and-twisting flyer, constructed and operating as described.

81,578.—SHUTTLE FOR LOOM.—Edward Baggett, Fall River, Mass.

I claim the combination, with the spring, A, and shoulder, C, of the spindle of the secondary spring, B, noched, slotted, and sliding substantially as and for the purpose described.

81,579.—MARKING WEATHER-BOARDING.—Joseph W. Bailey, New Orleans, La.

I claim the marking of weather boards in the manner herein described, during the operation of manufacturing them in the saw mill, or afterwards, during the process of dressing them in the planing machine, as and for the purpose set forth.

81,580.—WELL TUBE.—David Baker, Boston, Mass.

I claim, 1st, The double strainer, D, with intervening filtering material, arranged and operating in combination with or in continuation of a well-tube, substantially as and for the purpose set forth.

2d, The point, B, coupling, C, tube, A, and strainer, D, all constructed, arranged, and operating substantially as and for the purposes above set forth.

81,581.—WELL TUBE.—David Baker, Boston, Mass.

I claim, 1st, A conical point, F, formed with perpendicular sides, and with shoulders between the apex being formed with one or more drill edges, the sides, a, being elongated more or less, whereby the earth may be forced at right angles from said point in penetrating the ground, all substantially as shown and described.

2d, The combination of the interior perforated tube, A, and the exterior screen, H, when a chamber is forced between said tube and strainer, substantially as and for the purposes set forth.

3d, The arrangement of the point, F, in combination with the tube, E, and holes therein, strainer or screen, H, and the chamber or space formed between the strainer and tube, arranged and operating substantially as and for the purposes herein set forth.

81,582.—WELL TUBE.—David Baker, Boston, Mass.

I claim, 1st, The slide, J, whether placed on the inside or outside of a strainer, in a well tube, so arranged and secured to the point and operating as to leave the woven wire as the only tube near the lower part of the well, substantially as and for the purposes herein set forth.

2d, The combination of slide, J, with strainer, K, well tube, I, and coupling, L, with screw point, M, made and arranged substantially as and for the purposes herein set forth.

81,583.—MOP WRINGER.—Myron J. Barcalo, Mount Morris, N. Y.

I claim, 1st, The skeleton frame, B, made up of the hoops, b, b, and standards, c, c, 2, and having combined therewith the rollers, C, D, D', and ball or treadle, E, the whole being so arranged as to be applied to the inside of an ordinary pail, as herein set forth.

2d, The combination, with the stationary roller, C, of the pressing rollers, D, D', mounted upon the rollers, F, arranged as described, and operating in the manner and for the purpose specified.

81,584.—LANTERN.—Lewis F. Betts, Chicago, Ill. Antedated August 20, 1868.

I claim, 1st, The spring band, E, for securing the upper end of the globe, substantially as specified.

2d, Constructing a lantern base of two or more sections, D, provided with flanges, F, substantially as and for the purposes set forth.

3d, Securing the flanges and forming the carrying-holes for the guard by means of eyelets at d, substantially as described.

4th, The brackets or ledges, F, for supporting and carrying the guard at a distance from the main portions of the base, substantially as specified.

5th, The rod or ring, J, for strengthening the base and supporting the bracket or ledge without materially obstructing the light, substantially as specified.

6th, The extended guard rods, N, when such extended portion, e, is used for a hook or catch, substantially as described.

7th, The combination and arrangement of the guard, provided with hooks, e, with the brackets, F, substantially as and for the purposes specified.

8th, The spring top, E, in combination with the hooks, e, and bracket, F, for preventing the detachment of the guard, substantially as specified.

9th, The inclines or cans, b, for securing and tightening the lamp, in combination with the pins, c, substantially as specified.

81,585.—CAN TOP.—Lewis F. Betts, Chicago, Ill.

I claim, 1st, The inclines or cans, a, when hurred or turned down so as to form the cam on the edge of the metal of which the breast or permanent portion of the top is constructed, and operating substantially as specified.

2d, The handle, f, when projecting through the removable top or cover, B, so that its ends will form the lugs or pins, d, substantially as described.

3d, The permanent portion of the top or breast, A, provided with the cans or inclines, a, in combination with the removable portion or cover, B, and lugs or pins, d, substantially as and for the purposes specified.

81,586.—CHURN DASHER.—A. T. Bleyley, Conception, Mo.

I claim, as a new article of manufacture, the churn dasher, consisting of the inverted funnel shaped tube, A, B, dish-shaped perforated flange, C, and radial wings, D, all constructed and arranged to operate as herein shown and described, for the purpose specified.

81,587.—DECOLORIZING TANNIN LIQUID.—George Bossiere, Paris, France.

I claim, 1st, The use of the herein named substance, for decolorizing tannin liquors, substantially in the manner described.

2d, The method of decolorizing tannin liquors, by mixing with it the ingredients herein named, or either of them, in the proportions substantially as specified.

81,588.—REFRIGERATOR.—Edwin D. Brainard, Albany, N. Y.

I claim the employment of independent metallic chambers, closely sealed and secured together by clamps, in the construction of refrigerators, substantially in the manner and for the purposes above described.

81,589.—CHURN.—Victor M. R. Branch, Richmond Va.

I claim, 1st, The combination of the external dasher, B, with the internal dasher, B', when constructed as shown and described, and revolving in opposite directions as specified, and for the purpose set forth.

2d, The combination of the dasher, B, hollow spindle, D, and pinion, F, with the dasher, B', spindle, C, and pinion, G, all as and for the purpose specified.

81,590.—APPARATUS FOR CARBURETING AIR AND APPLYING THE SAME.—Arthur Brin, Paris, France.

I claim, 1st, In apparatus, such as described, the combination, with the fluid reservoir and carbureting chamber, of an interposed feeding vessel, connected with both the reservoir and the carbureting chamber, in the manner described, and communicating with the latter by means of wicking, which supplies the quantity of fluid required to charge the air in said chamber, as set forth.

2d, The combination, with the feeding vessel, and trough formed therein for receiving the liquid from the reservoir, of a series of siphons, of graduated length, and racks, and pinions, and shaft for elevating or lowering said siphons, and thus regulating the flow of the liquid to the carbureter, in the manner shown, and specified.

3d, The employment, in connection with an apparatus such as described, of a blow pipe, to draw air from the carbureting chamber, and from the gas-generating chamber, are supplied, substantially in the manner described and illustrated in fig. 5.

4th, The combination, with a tubular boiler, of two series of nozzles, arranged with relation to each other, and the boiler flues, as represented in fig. 6, the one series communicating with a blower or air supply apparatus, and the other with the gas-generating chamber of the carbureting apparatus, substantially as and for the purposes herein set forth.

81,591.—ORGAN PIPE.—George H. Brock, Huntington, N. Y.

I claim, 1st, Constructing an organ pipe of a curved plate, A, held between the blocks, B, as set forth.

2d, The plate, D, for guiding the wind from the wind chest against the mouth of a curved organ pipe, as specified.

3d, The pendant arrest-r, d, arranged in the curved organ pipe, substantially as and for the purpose herein shown and described.

81,592.—ADVERTISING SHOW-FRAME.—William P. Brown, Watertown, N. Y.

I claim the bulletin frame, as constructed of the outer frame, A, and inner frame, d, the latter divided by sash strips, a, and provided with panes of glass and removable backs, B, the frame, A, having moings and fastening devices, adapted to secure the sash strips, all arranged substantially as herein shown and described, for the purposes specified.

81,593.—SAFETY ATTACHMENT FOR EGG-CARRIER.—Abner H. Bryant, Wilmington, Del.

I claim the frame, with its cloth bottom arranged and constructed, as shown, as a safety attachment for the suspension egg carrier hereinbefore mentioned.

81,594.—HAND SPINNING MACHINE.—J. W. Burkhart, Cameron, Mo.

I claim the combination of the pulley, B, tightening pulley, f, provided with its adjustable support, e, pulley, o, and multiplying wheel, C, and spindle, d, and adjustable support, E, of the same system constructed and arranged substantially as and for the purpose described.

81,595.—SPOKE-TENONING MACHINE.—A. Harvey Calhoun, and George W. Collins, West Lebanon, Pa.

We claim the cutters, i, n, attached to the adjustable straight bars, m, and the curved braces, O, all suspended from the upper cross bar, a, of the sash frame, and constructed, arranged, and operating as herein shown and described.

81,596.—ANIMAL TRAP.—Alexander Campbell, Oxford, Ind.

I claim the latch, E, and hinged plates, F, having tongues, a, a' (a) to swing with the centrally pivoted platform, A, and arranged with relation to the notched plate fixed to frame, D, as herein shown and described.

81,597.—CORN-PLANTER.—S. O. Campbell, Leavenworth, Kansas.

I claim, 1st, The seed boxes, F, F, arranged in combination with the shoes, I, I, K, K, frames, L, and springs, M, with the projections, m, on the wheels, B, substantially in the manner and as for the purpose set forth.

2d, The clutch, composed of the two notched plates, D, D', on the axles, C, C', and the sliding or adjustable plate, E, provided with the arms, c, c, and placed on the axle, C', all arranged substantially as and for the purpose specified.

81,598.—BASE BALL TALLY-BOARD.—Thomas L. Canary, Brownsburg, Ind.

I claim, 1st, The use of the wire pins and variously colored balls, as represented at D and C, for keeping game in base ball playing, substantially as described.

2d, The use of movable or adjustable pins for keeping a game, and the method of clearing the ball from the pins, substantially as described.

3d, The arrangement of the pins on the board, substantially as and for the purpose set forth.

4th, The slate, or other marking surface, in combination with the pins and ball, substantially as and for the purposes set forth and described.

81,599.—CHURN.—N. P. Chaney, Potsdam, N. Y.

I claim the combination, with the tubular beaters D, of the arm, B, provided with the scrapers, o, b, substantially as and for the purpose described.

81,600.—ROLLING-MILL.—Joseph L. Chapman, Philadelphia, Pa.

I claim, 1st, The arrangement of three smooth conical rollers, rotating in different places, and operating in the manner described, to form and feed the roa simultaneously, as above specified.

2d, The adjustment of the rollers, C', C', to form rods of different sizes, by means of ball and socket joints at one end, and the set screws and journal boxes at the other end, substantially in the manner shown and set forth.

81,601.—INTERFERING STRAP FOR HORSES.—Edwin Chesterman, Boston, Mass.

I claim leather interfering straps, in combination with rubber guards or projections, as herein shown, for the purpose specified.

81,602.—LOCOMOTIVE SPARK ARRESTER.—Ira Choate, Exeter, N. H., assignor to himself and Daniel Lee, Boston, Mass.

I claim, 1st, The construction and arrangement of the tube, A, smoke stack, E, cover, D, and air apertures, a, a, a, a, substantially as shown and described.

2d, The coupling, C, B, cord or band, d, and guides, c, c, substantially as shown and described.

3d, The coupling, C, B, constructed as described.

4th, The arrangement of the cord, d, and guides, c, c, substantially as described.

81,603.—VELOCIPÈDE.—Andrew Christian, New York city.

I claim the operating device of a velocipede, consisting of the bell crank levers, G, H, one having a vertical and the other a horizontal lever end, and of the rods, m, i, and crank, b, all made and operating substantially as herein shown and described.

81,604.—CLOTH GUIDING ATTACHMENT FOR SEWING MACHINES.—Jas. Chme (assignor to John Walls, Eaton, Ohio).

I claim the revolving holder, D, constructed as described, in combination with pin, B, standard, A, and spring, C, as and for the purpose described.

81,605.—DISTILLING APPARATUS FOR SPIRITS.—J. C. Cooksen, Lancaster, Pa.

I claim, 1st, An extra vessel III, with its chamber, A, in combination with the chamber, B, and its perforated bottom, and an upper chamber, C, with its conic head and central pipe, 9, pipes, 7 and 6, issuing from their respective departments, in the manner shown and specified for the purpose set forth.

2d, In combination with said extra vessel, III, with its chambers, A, B and C, the snail, D, with its pipe, 10, sleeve, 8, faucet funnel, d, mounted and arranged substantially as described.

3d, The chamber, F, when combined with the worm of the condensing vessel and the extra vessel, III, by means of the several pipes, d, 7 and 8, substantially arranged in the manner and for the purpose specified.

81,606.—DRYER.—Cordial Crane, Boston, Mass.

I claim, as a new article of manufacture, a clothes-drying closet, constructed with doors and pivoted racks, and provided with inlet passages to receive heated air from register pipe, and with outlets for the escape of heated air saturated with moisture, all substantially as and for the purpose described.

81,607.—SLOTTING AUGER.—Peter Cunningham, Eckley Pa.

I claim a mortising or slotting auger, having rows of gouge or chisel flutes formed on the edge of the twist, substantially as described for the purpose set forth.

81,608.—MACHINE FOR GRINDING METAL ARTICLES.—J. P. Curtis, New Britain, Conn.

I claim, 1st, The arrangement of a series of clamping jaws, a, in the holder, A, substantially as and for the purpose set forth.

2d, The holder, A, made in two parts, one part being fitted into the carriage