

descent of the products of combustion on their way to the escape flue, substantially as described.

2d. An exposed coal magazine, D, an illuminating ring, C, an annular fine chamber, A, and a hollow base, B, arranged and combined substantially as described.

3d. The combination of a cylindrical coal supply magazine, the cylindrical portion being exposed, an inclined illumination ring, C, furnished with mica or other transparent windows or doors, and a fire pot, all in the manner and for the purpose described.

4th. An escape pipe leading into the frame, K, from an exposed magazine, D, when this magazine is arranged over a fire pot surrounded by a descending flue and supported upon a hollow base, B, substantially as described.

79,506.—ANIMAL TRAP.—E. B. Smith, Marietta, Ohio.

I claim the box, A, A', with platforms, B, C, constructed as described, spring catches, D, E, flat spring, e', passage, f, and trap door, f', the whole being combined and arranged substantially as described.

79,507.—HARVESTER RAKE.—Edgar M. Smith (assignor to Mitchell, Vance and Company, New York City).

I claim, 1st, In revolving, rising and falling, and rolling rakes, the elongating and shortening of said rakes by sliding them in their bearings, so that they will sweep an irregular shaped platform, substantially as described.

2d, Locking and unlocking and moving of the rakes out and in by devices, substantially as herein described, that are self-acting and require no attention on the part of the operator, substantially as described.

3d, The combination of the trigger, l, and sliding lever, k, for moving the rake out, so that it can roll in its bearings and thus become a rake instead of a beater, at the will of the operator, substantially as described.

79,508.—STOVE POLISH.—Edwin C. Smith, Brandon, Vt.

I claim a stove polish, composed of the ingredients set forth, substantially as described.

79,509.—GUIDE FOR SCREWS.—Norman Smith, Hartford, Conn.

I claim the combination of the tube, A, B, and two or more springs, E, for the purpose of a guide for starting screws, substantially as herein specified.

79,510.—COOKING STOVE AND RANGE.—James Spear, Philadelphia, Pa.

I claim, 1st, The application of double doors to a cooking stove or range, above the fire grate, constructed in the manner and for the purpose substantially as herein described.

2d, The application of raised or ornamental knobs on the back plate of a cooking stove, for the purpose substantially as herein described.

79,511.—COMBINATION OF WOOD AND PAPER FOR CABINET PURPOSES.—A. C. Spencer (assignor to himself, E. B. Jones, and William H. French), Bridgeport, Conn.

I claim the herein described process for combining wood and paper for cabinet and other purposes.

79,512.—HORSE HAY FORK.—G. H. Strough, Watertown, N. Y.

I claim, 1st, The tines, G, G', constructed substantially as described, arranged to work in a recess, V, constructed as described, within the sheath or case constituting the body of a pointed fork, and attached to the central rod, F, by means of the pivoted links, t', all substantially as herein described.

2d, The manner of locking the shanks of the tines, G, G', between lips, v, v, and shoulders, u, substantially as described.

3d, Effecting the retraction of the tines by means of a spring or springs, applied within the pointed portion, D, of the fork, substantially as described.

4th, The arrangement of the pivoted spring catch, c, nose, c', and trip lever, b, and cross head, E, substantially in the manner and for the purpose described.

79,513.—STRAW CUTTER.—D. Sturgis, Byron, assignor to himself and M. Thatcher, Shawwassee, Mich. Antedated June 27, 1868.

I claim the arrangement of the cylinder, as constructed with the frame, A, box, X, and feed rollers, K and N, connected together and operating as and for the purpose set forth.

79,514.—STEAM BOILER FURNACE.—Frederick Sulter, St. Paul, Minn.

I claim the construction of the inclined and horizontal surfaces of the semi-circular hearth, D, with its side air passages, C, and spark and draft chamber, E, when arranged and combined as herein described and for the purpose set forth.

79,515.—RAILWAY JOINT.—J. H. Swett, Birmingham, Pa.

I claim, in combination with the abutting ends of two railroad rails, the divided jaws, b, and the divided clamp, C, C', said clamp being drawn up tight against the jaws, and the jaws against the rails, by a through bolt and nut, for the purpose of strengthening the joint, substantially as described.

79,516.—MACHINE FOR MAKING RIVETS.—James H. Swett, Birmingham, Pa.

I claim, 1st, The combination of the header, die, and rod, c, all arranged and operated substantially as described.

2d, In combination with the header, die, and rod, c, the bolster, T, for keeping the blank straight while being pushed up to the header, substantially as described.

79,517.—DEVICE FOR VENTILATING MILLSTONES.—Robert Symes, St. Charles, Mo.

I claim the blower, M, cold blast tube, h, fans, e, e', e'', tube, D, and condenser, E, all arranged substantially as specified.

79,518.—HARVESTER.—C. R. Tabor and J. O. Tabor, Salem, Ohio.

I claim, 1st, The arrangement of the lever, D', shaft, E', and arm, F', in combination with the stay, J, and drag plate, I, for the purpose set forth.

2d, The lever, l', check lever, L', and jointed arm, C', all constructed and arranged to operate as and for the purpose specified.

79,519.—HARNESS BUCKLE.—Spencer F. Taylor, Oxford, Ohio. Antedated June 24, 1868.

I claim the buckle, E, constructed with bridge, A, and spur, G, in combination with tongue, C, when said tongue is formed in the manner specified.

79,520.—LADDER.—Carl C. T. Thomas and Frederick A. S. Raymond, Beverly, Mass.

I claim the movable foot, B, constructed and attached to the side of the ladder, substantially as and for the purposes herein set forth.

79,521.—COMPOSITION CLOCK CASE.—Samuel B. H. Vance and E. M. Smith (assignors to Mitchell, Vance & Co.), New York City.

We claim, 1st, A clock case, made of the composition herein described, made plastic by diluted alcohol, and colored and moulded into shape or form, as herein described and represented.

2d, In combination with a composition clock case, made in imitation of marble, a metallic ring, embedded or cemented thereto, which ring serves as a seat for the clock case, and other attachable or removable parts, as described and represented.

79,522.—METALLIC ROOFING.—Ethan P. Vaux, Washington City, D. C.

I claim a corrugated metal roof that will allow of expansion and contraction in all directions, when the same is constructed and arranged substantially as herein described.

79,523.—WATER HEATER FOR STEAM BOILER.—A. H. Walker, Oswego, N. Y.

I claim the arrangement of the pipes, C, C', chambers, h, h, partitions, a, annular chamber, b, drum, A, and pipes, E, and D, substantially as herein set forth.

79,524.—CLOTHES DRYER.—J. R. Watkins, Maine Prairie, Minn.

I claim, 1st, The plate, A, having the concave rear side, and provided with the cruciform slot, C, screw holes, D, D, and the lug, B, substantially as and for the purpose set forth.

2d, In combination with the above, the screw rod, G, nut, H, and lug, F, having the head, m, and shank, n, substantially as described.

79,525.—SASH SUPPORTER.—John N. Watrous, West Meriden, Conn.

I claim the two spring frames, A and B, combined in a single case, provided respectively with springs, A1 and B1, and bolts, A2 and B2, the yoke of each bolt extending back to the roller or armed hub, D, which has its bearings in the side projections, C and C', and operating by the rotation of the spindle H, so as to withdraw either of the bolts, substantially in the manner herein set forth.

79,526.—LAMP SHADE.—Gustav Wedekind, Philadelphia, Pa.

I claim a lamp shade clamp, stamped out in a disk form, in one piece, and with radial arms, which are bent into position to hold the shade to itself, and it to the glass chimney, substantially as herein described and represented.

79,527.—CHECK VALVE.—J. Wilson, Chester, assignor to A. H. Simon, Philadelphia, Pa.

I claim the valve, B, hung to projections, h, in the casing, confined thereto by the screw cap, d, and arranged for introduction into and withdrawal from the said casing, all substantially as and for the purpose herein set forth.

79,528.—REGULATING DEVICE OF MILLSTONES.—S. Benson (assignor to himself, J. Benson, and J. F. Benson), Centralia, Ill.

I claim the combination of the springs, E, E, the disk sections, D, D', the pinion, C, and the spindle, A, arranged and operating substantially as and for the purpose herein described.

79,529.—CAR STARTER.—I. N. Bevens, Thomaston, assignor to himself, John H. Olcott, and G. G. Griswold, Plymouth, Conn.

I claim the lever, B', so constructed and applied as to act directly upon the ratchet wheel, D, and employed in combination with the lugs, E, sliding draft rod or bar, H, chain, K, pulley, G, and catch, m, arranged and operating in the manner and for the purpose explained.

79,530.—CLAMP FOR WOOD BENDING MACHINES.—J. B. Van Horn, Trenton, N. J.

I claim the clamp, A, having angular flanges, e, e, in combination with the wedge, B, when the same is constructed as described, and the whole operated substantially as described and for the purpose specified.

79,531.—CLOTHES SPRINKLER.—J. W. Walters, Tiffin, Ohio.

I claim, as a new article of manufacture, a clothes sprinkler, constructed as described, and consisting of a vessel, A, having a perforated head, and provided with a hollow handle, B, valve, c, stem, E, h, and springs, s, all arranged and operating as set forth.

79,532.—ATTACHING HANDLES TO MOLDBOARD OF PLOWS.—Chas. Williams, Jackson, Miss.

I claim the lugs, a, a, bolts, d, d, nuts, c, c, and handle, e, the whole combined and arranged and operated substantially in the manner herein shown and described and for the purpose set forth.

79,533.—SPOKE AND FELLY CONNECTION.—Geo. Allen, Winchester, Mass., assignor to B. W. Conroy, Port Huron, Mich.

I claim the within-described device, consisting of the tubular socket, A, the transverse arm, B, and the connecting arm, C, C', and the tenon or projection, D, the latter being formed or cast with the metallic connection, and extending entirely through the felly, in order to cause the tire to be supported by the said tenon, D, substantially as and for the purpose set forth.

79,534.—BABY JUMPER AND CRADLE.—George H. Mellen, Chicago, Ill.

I claim, 1st, The cradle, A, provided with the openings in the bottom, a, a', made substantially in the manner and form and for the purpose described.

2d, The cradle, A, provided with openings in the bottom, a, a', in combination with the adjustable slides, e, e', and spring or springs, B, constructed and made in the manner and form and for the purposes described.

3d, The cradle, A, and opening, a, a', combined with the slides and adjustable spring or springs, B, and movable platform, C, constructed and made in the manner and form and for the purposes described.

REISSUES.

66,935.—SKATE FASTENER.—Dated July 23, 1867; reissue 3,607.—E. H. Barney and John Berry, Springfield, Mass.

We claim a skate fastener or key, composed of the socket, B, point, f, and button, e, when made of one or more pieces, substantially as described, and for the purposes specified.

74,799.—MODE OF TREATING MINERAL PHOSPHATE FOR THE MANUFACTURE OF FERTILIZERS.—Dated February 28, 1858; reissue 3,008.—John Commins, Charleston, S. C.

I claim writing, while hot, phosphatic minerals or earths, with a solution of common salt (chloride of sodium), and water, in part or whole, as and for the purpose herein described.

12,382.—BASE BURNING STOVE.—Dated February 13, 1855; reissue 3,009.—Division 1.—James Easterly, Albany, N. Y.

I claim constructing a stove, as herein described, with openings for the admission of air to the burning fuel at some point or points above the grate, including between said points and the grate sufficient fuel for ignition, at any one time, substantially as described.

12,383.—BASE BURNING STOVE.—dated February 13, 1855; reissue 3,010.—Division 2.—James Easterly, Albany, N. Y.

I claim a cooking stove, which is provided with a coal supply magazine and a combustion chamber arranged without the space enclosed by the outer walls of the stove, substantially as described.

2d, The combination of a coal supply magazine, with a cooking stove, when such magazine is wholly outside of the outer walls of the stove, substantially as described.

3d, In a cooking stove having a magazine for supplying the combustion chamber with fuel, the admission of the tobacco of the bat, arranged at some point or points above the grate, substantially as described.

4th, The relative arrangement of the several parts of the stove, whereby the heated products are caused to circulate around the oven, substantially as described.

55,217.—CIGAR MACHINE.—Dated May 29, 1866; reissue 3,011.—George Moebis, Detroit, Mich., assignee by mesne assignments of G. Albert Ringer.

I claim, 1st, The table, A, provided with the troughs, M, in connection with the cigar machine, substantially as and for the purpose described.

2d, The spring books, in combination with the table, A, apron, b, and roller, a, constructed and operating substantially as and for the purpose specified.

74,941.—CHURN.—Dated February 25, 1868; reissue 3,012.—John B. Raynor, Mazo Manie, Wis.

I claim, 1st, The shaft, C, provided with a series of straight arms, H, H, when arranged in combination with the box, B, having a series of I, I, in the manner and for the purposes set forth.

2d, The angular arms, G, constructed as shown and described, and arranged upon the dasher shaft, to operate substantially as and for the purposes specified.

66,202.—COTTON GIN.—Dated June 25, 1867; reissue 3,013.—Henry Valentine Scattergood, Albany, N. Y.

I claim, 1st, A ginning cylinder, formed with circular ribs or projections containing or supporting the teeth, said ribs or projections being elevated above the other portion of the surface of the ginning cylinder, and thus leaving grooves for the reception of the guards, substantially as specified.

2d, Forming the ginning cylinder of a series of rings, between which rings or segments of rings, containing teeth, are secured, substantially as specified.

3d, In combination with a cylinder carrying circular ranges of needle pointed teeth, the guards, R, for with openings to their upper ends, as and for the purposes specified.

4th, Attaching the delivering or doffing roller upon arms extending from the axis of the perforated condensing roller or cylinder, so that said delivery roller will revolve in the same direction as the condensing roller, and is kept properly in contact with the condensing cylinder as set forth.

5th, In combination with the condensing roller or rollers formed with smooth perforated surfaces, the screen, V, and brush blower, B, for conveying the cotton to the condenser, as specified.

6th, A condensing roller or rollers formed of smooth perforated surfaces, in combination with a ginning cylinder and a brush blower to pass the cotton fiber from the condenser to the ginning roller or rollers, substantially in the manner for the purpose above described.

9,653.—CORDED ELASTIC FABRIC.—Dated April 5, 1853; extended seven years; reissue —, dated June 18, 1867; reissue 3,014.—Division B.—William Smith, New York, N. Y.

I claim the corded fabric, substantially as hereinbefore described, in which the cords are elastic, and are held between the upper and under weft threads, and separated from each other by the interweaving of the upper and under weft threads with the warp threads in the spaces between the cords, and where, substantially as above shown.

15,309.—WATER WHEEL.—Dated July 8, 1856; reissue 3,015.—John Tyler West Lebanon, N. H.

I claim the curved bucket head, e, when the said head is combined with the series of segment shaped buckets, d, d, substantially in the manner herein set forth.

Also, the segment shaped buckets, d, d, when the said buckets are formed with and project from the concave surface of the curved bucket head, e, substantially as herein set forth.

Also, the combination of the buckets, d, d, with the bucket head, e, when the said buckets are located in positions tangential to the inner ginning circle, c, substantially as herein set forth.

Also, the combination of the scalloped edged rim, f, with the lower edges of the series of buckets, d, d, substantially as and for the purpose herein set forth.

Also, the combination of the elevated cover, D, with the curb of my improved water wheel, the latter being so proportioned as to receive and sustain the upper bearing box of the shaft of the wheel, substantially as herein set forth.

Also, the combination of the detachable gate box, B, with the mouth of the water way of the water wheel, all substantially in the manner and for the purpose herein set forth.

66,576.—LAMP SHADE.—Dated July 9, 1867; reissue 3,016.—James Emery, Bucksport, Me.

I claim a lamp shade, made of a screen, A, and a carrier, B, designed to be attached by its upper end, to the chimney of a lamp, with a portion of its body formed to rest upon the side of the chimney, which thus serves as a fulcrum on which to support the shade in an inclined position, constructed and applied together, substantially as specified.

31,566.—DRIER.—Dated February 26, 1861; reissue 3,017.—Francis H. Smith, Baltimore, Md.

I claim, 1st, The tunnel, A, B, C, furnace, R, and chimney, L, when the former is so constructed and arranged that the current of warm air is supplied to the same at the opposite point from which the articles to be dried enter, which causes the articles to be subjected to the action of a varying temperature, substantially as described, and for the purpose specified.

2d, The tunnel, A, B, C, furnace, R, and chimney, L, and gates, F, G, H, when the same are so combined and arranged as to operate substantially as described and for the purpose specified.

3d, The tunnel, A, B, C, furnace, R, chimney, L, and gates, F, G, H, when the same are in combination with the rails, E, E, and car, J, and the whole operates substantially as and for the purpose specified.

20,456.—WATER WHEEL.—Dated June 1, 1858; reissue 3,018.—John Tyler West Lebanon, N. H.

I claim the hinged section, C, of the inner face of the scroll shaped water way, f, said section, C, being arranged and operating in conjunction with the movable curb section, k, thereof, substantially in the manner herein set forth.

40,221.—LAMP.—Dated October 13, 1863; reissue 3,019.—Lewis J. Atwood, Waterbury, Conn., assignee, by mesne assignments, of himself.

I claim, 1st, A concave draft plate, having an elongated slot, in combination with a chimney holder, below the edges of that draft plate, and attached to the burner, substantially as set forth, so that the flame will be spread and the light shine both above and below the draft plate.

2d, An opening or series of openings between the said concave draft plate and the interior of the chimney, to allow an auxiliary draft to pass to the flame, in combination with a foraminous air distributor, connected to the burner, substantially as set forth.

3d, A foraminous air distributor, e, formed with or connected to the burner, in combination with a draft plate, supported from the burner and within the chimney, substantially as specified, whereby the action of the air on the flame is regulated by the joint action of said draft plate, air distributor, and chimney.

4th, An air distributor, substantially as specified, in combination with the draft plate and glass chimney, having a contraction or neck at or near the said draft plate, whereby the said draft plate can be made smaller than with a straight or tapering chimney, and not obstruct the light, substantially as shown.

5th, The chimney holder and the aforesaid draft plate, in combination with mechanism, substantially as specified, for connecting the chimney holder to the burner, whereby the chimney can be removed for trimming or lighting without being detached.

6th, Connecting the said draft plate to the burner by a slide, so that it may be adjusted in position or removed, substantially as and for the purposes set forth.

DESIGNS.

3,072.—SODA WATER FOUNTAIN.—Chas. W. Anderson, Cincinnati, Ohio.

3,073.—LABEL.—Samuel Crump (assignor to E. C. Hazard), New York City.

3,074.—SHOW CASE FRAME.—F. A. Howell, New York City.

3,075.—SCREEN.—Calvin L. Hubbard, New Haven, Conn., assignor to "New Haven Steam Heating Company."

3,076.—COFFEE URN.—George Jones, New Haven, Conn.

3,077.—BOTTLE.—A. Legrand Aine, Fecamp, France.

3,078.—BADGE.—Edward Moore, Portland, Me.

3,079.—COOK'S STOVE.—J. A. Price, Scranton, Pa.

3,080.—DOORS OF A COOK'S STOVE.—Chas. J. Woolson, Cleveland, Ohio.

3,081.—TOY GUN.—Spencer H. Brown and Chas. H. Willets, New York City.

3,082.—SCROLL TO BE APPLIED TO ENVELOPES.—Maro S. Chapman, Hartford, Conn.

3,083.—TRADE MARK.—Spencer M. Clark, Washington, D. C.

3,084.—HANDLE OF SPOON OR FORK.—Augustus Conradt, Philadelphia, Pa.

3,085.—FORK OR SPOON HANDLE.—Augustus Conradt, Philadelphia, Pa.

3,086 and 3,087.—MEDALLION SCARF RING.—Ralph S. Jennings, New York City.

3,088 to 3,093.—FLOOR OIL CLOTH PATTERN.—Charles T. Meyer, Bergen, N. J., assignor to Edward C. Sampson, New York City.

3,094.—CARD BASKET.—Geo. L. Underwood, Boston, Mass.

EXTENSION NOTICES.

John J. Weeks, of Oyster Bay, N. Y., having petitioned for the extension of a patent granted to him the 26th day of September, 1854, which patent was surrendered and application made for reissue in four divisions, for an improvement in harvesters of grain and grass, for seven years from the expiration of said patent, which takes place on the 20th day of September, 1863, it is ordered that the said petition be heard at the Patent Office on Monday, the 7th day of September next.

Joel F. Keeler, of Pittsburg, Pa., having petitioned for the extension of a patent granted to him the 26th day of September, 1854, for an improvement in platform scales, for seven years from the expiration of said patent, which takes place on the 26th day of September, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 7th day of September next.

Inventions Patented in England by Americans.

[Compiled from the "Journal of the Commissioners of Patents."]

PROVISIONAL PROTECTION FOR SIX MONTHS.

1,250.—HEATING AND VENTILATING APPARATUS.—John Johnson, Saco, Me. April 16, 1868.

1,728.—REMOVING INK AND COLORS FROM PAPER, ETC.—Joseph A. Veazie, Boston, Mass. May 26, 1868.

1,732.—ROTARY, STEAM, AND OTHER ENGINES.—J. M. Boorman, Scarborough, N. Y. May 26, 1868.

1,734.—PACKING FOR STEAM ENGINES, ETC.—Ivon B. Miller, Hackney Road, Middlesex, Eng., and Wm. H. Miller, Philadelphia, Pa. May 26, 1868.

1,736.—BREACH-LOADING FIRE-ARMS AND CARTRIDGES.—B. Burton, Brooklyn, N. Y. May 26, 1868.

1,737.—PLOWS AND OTHER IMPLEMENTS FOR CULTIVATING LAND.—S. G. Reynolds, Bristol, R. I. May 26, 1868.

1,760.—APPARATUS FOR HOPPING BEER.—Wm. S. Haight, Waterford, N. Y. May 26, 1868.

1,853.—PROJECTILES FOR RIFLED CANNON OR ORDNANCE.—E. A. Dana, Brookline, Mass. June 5, 1868.

MANUFACTURING, MINING, AND RAILROAD ITEMS.

The largest gold brick ever seen in Montana was lately on exhibition in a bank in Helena. Its weight was 1,632 ounces, and its value \$31,050.

The Superintendent of the Pennsylvania railway, in investigating the relative cost of making high and moderate grades, has shown that if of two roads, each one hundred miles long, the one has grades of twenty-five feet to a mile, and the other of ten, and the demand for transportation on each amounts to 2,000,000 of tons per annum, the difference in favor of the level road is \$600,000, or the interest on \$10,000,000.

At the steel works of John Brown & Co., at Sheffield, Eng., is a machine for cutting iron rails cold. A circular saw, sixteen inches in diameter and one quarter inch thick, making twenty revolutions per minute, has the power and actually does the work of cutting six steel rails every hour. A feature admirable for the order and cleanliness of the same mill, is a cemetery for the rolls not in use, where they are all buried in special tombs provided for their reception under the iron floor of the mill, whence they are easily removed by the hydraulic cranes.

Professor Hitchcock, of Amherst College, in a recent public lecture, said there was enough copper ore in Gardner's Mountain, New Hampshire, to supply all the United States for two hundred years, the metallic veins extending for five miles, and having an average depth of five hundred feet.

The mineral wealth of Algiers is represented to be inexhaustible. At the iron mine Makta-el-Hadeel, near Bone, the mineral in some places crops up above the surface of the ground, and is worked in immense crater-like cuttings to a depth of one hundred feet. About 200,000 tons of ore, yielding 65 per cent of pure metal, are annually sent to France from these mines.

The most expensive railway line in England, and probably the costliest ever constructed, is that of the London and Southeastern company's, from Charing Cross to Sevenoaks. Upon this road, less than twenty-five miles in length, the enormous sum of \$47,500,000 in gold has been expended. We were informed by an engineer in London that the Charing Cross connection to the city, in length about two and a half miles, cost \$5,000 per yard forward, including stations and two bridges across the Thames.

The large alum works in the province of Brandenburg, Prussia, has been purchased by two enterprising New Englanders engaged in business in Hamburg. The number of American firms in that city have doubled since 1866.

Recent investigation has proved the fact that the island of Newfoundland possesses mineral treasures in large variety and abundance. Since the discovery has been made, the project has been revived of building a railway from St. John's across the country to the western shores of the island. The projectors of the road—among whom is our energetic countryman, Cyrus W. Field—have secured a tract of land twenty miles in width, and extending over the whole length of the contemplated route, the land being wonderfully rich in copper ore of the very best quality. The railroad will open up the entire inland country, and render it accessible for mining operations.

At a recent *conferenza* of the London Institute of Civil Engineers, a curious process for manufacturing steel by friction was explained and commented upon. By the aid of machinery pig iron is ground to powder by a rapidly moving cutter. The great amount of friction generated produces a heat so intense that the iron is set on fire, and after scintillating falls down as reddish-brown dust, the combustion having caused the riddance of the superfluous carbon. The dust is collected, put into a crucible, melted, and when cooled is found to form ingots of steel of superior quality.

In boring a well to obtain water in the town of Dax, Department of Landes, France, a bed of rock salt was discovered at the depth of one hundred feet. By the use of water, injected through a pipe, the perforation was continued through the rock salt some fifty feet further, and the result is a saline fluid containing nearly ninety-eight per cent of pure salt. A company has been formed to work these remarkable deposits.

NEW PUBLICATIONS.

ENGRAVED PORTRAIT OF GENERAL GRANT.

Many of our readers are doubtless familiar with Marshall's celebrated engraving of Abraham Lincoln, which as a work of art has received the unqualified praise of critics both in Europe and our own country. The same artist has produced, from his own oil painting, a very fine engraving of Gen. Grant, which has received the indorsement of his family. As a superb work of art it equals that of Lincoln, and is worthy of the highest commendation. It is published by Ticknor & Fields, No. 63 Bleecker street, New York, and is sold by subscription only. We are asked to state that agents are wanted for its sale.

THE MECHANIC'S TOOL BOOK. By W. B. Harrison. D. Van Nostrand, 192 Broadway, New York City.

The author and compiler of this manual very justly says that "no two mechanics work alike," and it needs but little observation to verify its truth. In many shops, particularly the jobbing machine shop, a readiness to adapt with celerity the tools or appliances on hand, or to contrive plans for an exigency, is a rare and valuable quality in workmen, and such men are not easily found. To enable the apprentice to learn and the journeyman to command the use of such appliances is the intention of this volume. As a practical mechanic we think the writer has succeeded in imparting information valuable because given by a practical man, and useful because well arranged and profusely illustrated.