

## ENGINEERING INVENTIONS.

A turbine water wheel has been patented by Mr. Elbridge W. Stubbs, of Lincoln, N. C. The invention covers a novel construction of the guides or chutes, and the mechanism for opening them; also a flange ring gate hung upon a yoke pivoted to a support on the top plate, the object being to obtain a discharge of water on the paddles in solid streams through peripheral chutes.

A sand and gravel excavator, separator, and assorter has been patented by Mr. Nicholas W. Godfrey, of Northport, N. Y. This is an automatic excavator, which delivers its scrapings to screens or separators, where they are graded and discharged in different places according to the grades, the mechanism being movable to easily adapt it to the exigencies of ordinary work.

A friction drum for inclined plane cable railways has been patented by Mr. Earle C. Bacon, of Brooklyn, N. Y. There are two friction drums, around which the cable passes, with a brake-band for each drum, both being adapted to be applied simultaneously, also a cog wheel united therewith, and a pinion on a shaft that can be rotated, the pinion being adapted to be engaged with the cog wheel, the object being to facilitate the starting of cars.

An upright tubular boiler has been patented by Messrs. Remi Henry and Hiram B. Taylor, of New Rochelle, N. Y. An annular base tube is connected with the lower ends of a circle of upright tubes, these being connected with a circle of shorter intermediate tubes and a central annular tube, by connecting tubes with right and left screw threads upon their ends, the circular base tube having a blow-off cock and an inlet water pipe, and the central annular tube having a steam pipe.

## MECHANICAL INVENTIONS.

A card sharpening apparatus has been patented by Mr. John Brierley, of Easthampton, Mass. The sharpeners are mounted to reciprocate across the faces of the rotating cards and doffers, but the arrangement is such that a uniform pressure is had over the whole width of the cards, to sharpen them without making them untrue.

A gauge attachment for boring bits has been patented by Mr. John Fuller, Sr., of Seneca, Kan. The device consists of a clamp adapted to be placed upon the shank of a bit, auger, or other boring tool, the clamp being constructed to hold a gauge bar in such manner that it will stop the progress of the boring tool when the right depth shall have been reached.

A mechanism for delivering pile warps in looms for weaving double pile fabrics has been patented by Mr. Frank Charcot, of Paterson, N. J. The mechanism covers clamping bars and rollers, between which the pile warps are passed, the bars and rollers being mounted on a frame with means, operated from the hooks of a Jacquard mechanism, whereby the bars and rollers are made to clamp and carry forward the pile threads.

## AGRICULTURAL INVENTIONS.

An improved hay stacker has been patented by Mr. Albert Cooley, of Osceola, Iowa. This invention combines, with a base and suitably adapted inclined frame, a movable rake, adapted for the collection of hay in the meadow, and which can, by an attachment of ropes and pulley in the frame, be drawn up, and dumped by its own weight in position on the stack.

## MISCELLANEOUS INVENTIONS.

A tag holder, for attaching and detaching tags to bundles, has been patented by Mr. Edward H. Tannehill, of Malvern Junction, Ark. The holder has a hook made integral therewith, adapted to receive a snap spring, with an internal groove closed at one end to receive a tag or label.

A trace buckle has been patented by Messrs. Ferdinand Wetstein and Frank H. Dyckman, of Sleepy Eye, Minn. The buckle is cheap and durable, and is intended to effect a saving in both material and labor in making harness, since it takes the place of leather portions now used, and no stitching is required.

An ointment for the cure of tetter and other cutaneous diseases has been patented by Mr. Manlius Huggins, of Waynesborough, Miss. It is composed of chrysophanic acid, glycerine, oil of sassafras, and other ingredients, in definite proportions, and to be mixed and applied after specific but exceedingly simple directions.

A whiffletree hook has been patented by Mr. William H. Best, of Eastport, Mich. This is an improvement on whiffletree hooks which have spring guards to prevent accidental detachment of the trace eye from the hook, and the novelty consists in the form and arrangement of the spring guard with reference to the hook.

An improved pack saddle has been patented by Messrs. William C. Smith and William L. Hunter, of Lone Pine, Cal. The pack boxes designed in this invention are contrived to be filled and emptied without removing from the animals, and the means are provided for substantial and durable connection to the pack saddle.

An ice creeper has been patented by Mr. Frank M. West, of Mohawk, N. Y. The invention covers a permanent heel plate and a detachable spur plate, the latter having spurs on one side and a screw-threaded shank on the other, so the spur plate may be easily detached from the boot or shoe, and attached when desired.

A timber and lumber stamp has been patented by Messrs. Levi Thrush and Leonard Wilson, of Brookville, Penn. This device covers a special arrangement of ratchets and pawls, whereby, with a simple pressure of the thumb, a changeable stamp whose characters are on wheels loose upon an axis may be operated very easily and rapidly.

An improved buckboard wagon has been patented by Mr. William Lockwood, of Madrid, N. Y. This invention covers details of construction and arrangement of parts, with simple springs and spring braces, durable and inexpensive, to give to the wagon easy riding qualities, while retaining the lightness and ease of draught of the common buckboard.

An improved lace fastening has been patented by Mr. Henry H. Porter, of Littleton, N. H. It is an improvement on a lace fastening patented by the same inventor last year, and provides for an additional cross bar at the bottom surface of the eyelet, to prevent the slack part of the lace from passing back, and holding it in position when the strain is taken off.

A trace carrier has been patented by Mr. Louis T. Anderson, of Carroll, Iowa. The invention covers a buckle frame with a cross piece having a pin or tongue, and a hook with a projecting guard, the pin serving to hold the buckle to the hip strap, the hook holding the cock-eye of the trace, and the guard serving to prevent the horses' tails or the lines from catching in the hook.

A portable counter has been patented by Mr. John T. Perry, of La Grange, Ga. The counter is mounted on wheels, to be readily movable, and standards are erected upon it, between which are hoppers to contain articles to be sold, while on the counter a scale provided with wheels may be made to run under either hopper, besides other novelties in the construction and arrangement of parts.

A picture exhibitor has been patented by Messrs. Abraham J. Dworsky, Marcus B. Kramer, and Simon Phillips, of New York city. It is a casing with a series of swinging doors, with recesses in the inner sides, in each of which picture holding frames are hinged, and with a central standard on which frames are hung, with mechanism for opening or closing all the doors.

A baling press has been patented by Mr. John P. McDonald, of Litchfield, Ill. The bale box is made with close top and bottom, and sides slotted to receive the bands, and there is a double-jointed lever, through which power can be applied by attaching a draught animal to its free end, the press being intended to promote convenience and economy in baling hay, cotton, etc.

A combined tire tightener and jack has been patented by Messrs. Riley McCloskey and Albert E. Tozier, of Walla Walla, Washington Ter. In combination with a lifting screw are fast wheels with reversed ratchet teeth, and other devices, so the jack may be used generally for raising the axle of a wagon for removing the wheel, or for spreading the felloes of wagon wheels for tightening the tire.

An improved bob sled has been patented by Mr. Joseph H. Kerk, of Brady, Clearfield County, Penn. The sled has a platform, or double bolster, and a jointed king bolt, so the bob will be free to move in any direction without affecting the position of the platform, the sled being free to adapt itself to an uneven surface, and being easy of being turned in a very small space without unduly straining any of its parts.

An improved ruler, for drawing lines readily and rapidly without soiling the paper, has been patented by Mr. Monroe Green, of Brooklyn, N. Y. A longitudinal frame is held on a ruler, between the wires of which is a stylographic or like pen, which, drawn lengthwise through the frame, draws a line, the frame being pressed upward by springs, so the pen will not be on the paper when not in actual use.

A cold-air blast centrifugal sirup cooler has been patented by Mr. Albert B. Smith, of Fairfield, Neb. The sirup is thrown by a revolving distributor against the inner surface of a cooling tube, the distributor being operated by compressed air forced into the tube, so the sirup is cooled rapidly, remains several shades lighter, and of a higher specific gravity than that cooled by the slow process.

A jewel support for the balance staffs of watches has been patented by Mr. Walter Ware, of Waverly, N. Y. This invention consists in setting the jewels, or the settings which hold them, at either or both ends of the balance staff, in the spring or springs, so the jewels will yield whenever unusual pressure is brought on them, as by a fall, etc., and the watch will be more permanently accurate.

An improved alarm clock has been patented by Mr. Isaac St. C. Goldman, of Pasadena, Cal. It has a latch plate so combined with other mechanism that when the alarm spring is wound immediately after the alarm has been sounded, the latch plate covers the disk, prevents the lever from passing into the notch, and stops the alarm from being again sounded until it comes to the time for which it is set.

A breeching attachment for carriage shafts has been patented by Mr. Samuel W. Booksh, of Baton Rouge, La. In combination with the thills is a bow with its ends clipped thereto, and its curved rear portion somewhat elevated above a horizontal plane touching the upper surfaces of the shafts; the bow is made strongly, and so connected that the harness breeching may be dispensed with, thus simplifying the harness and lessening the labor of harnessing.

An improved lock has been patented by Mr. David Morris, of Log Cabin, Ohio. The slide bolt is moved in either direction by a wiper, and the bolt is preferably a plain cylindrical rod, fitted to the case, of proper form and size to receive the same, so the bolt may be supported by the case only, making a more permanent and better working arrangement than is afforded by clips, guides, and other attachments to the interior of the case.

An improved process of treating volatile and inflammable fluids and oils has been patented by Mr. Solomon M. Eiseeman, of New York city. It covers so treating crude petroleum, turpentine, etc., that they will be converted into a hardened compact mass, to facilitate transportation and storage, and for convenience in use, an acid, or a substance with acid properties, being incorporated by a suitable medium with the inflammable or volatile fluid or oil. It is an improvement on an invention patented by the same inventor last year.

## Special.

## T. S. ARTHUR AT SEVENTY-FIVE.

For many years the genial countenance of Mr. T. S. Arthur has been a familiar sight to the citizens of Philadelphia, as he has walked the streets of the city on the route between his home and his office. His name has been a household word among the readers of pure literature throughout the whole country. And "Arthur's Home Magazine," which he has so long and so successfully edited, has secured so hearty and so permanent a welcome in many thousands of the best households in the land, that Mr. Arthur cannot be regarded as a stranger by intelligent people anywhere. The many stories and tales of which he is the author are written in the interest of purity, good morals, and reform, and especially those which are in aid of the temperance work, have been productive of immense good. They have had an exceptionally favorable reception, and have nobly served their purpose of stimulating people to high aims and noble intentions.

It might be supposed by those who have not personally seen Mr. Arthur, that a man who could for years work as diligently as he has, and who could produce the extraordinary amount of superior literary material which has come from his pen, must be one of giant physique and robust constitution. Those who are familiar with his slender form know that it is far otherwise; his constitution was never strong. About 1870 he had suffered to such an extent from physical and nervous exhaustion that most of his friends gave him up as not likely to live long. It seemed as if his work was almost done.

The narration of Mr. Arthur's decline in health, and of his restoration to vigor and the enjoyment of life, is of singular interest, as given by himself to one of our editors who recently enjoyed a protracted conversation with him. Mr. Arthur said, substantially:

"Previous to the year 1870 my health had been very poor. For a number of years I had been steadily losing ground in consequence of the constant physical and nervous strain resulting from overwork. I became so exhausted that my family and friends were very anxious about me. Only a few of the most hopeful of them thought I could live for any considerable time. I was forced to abandon all my most earnest literary work, and I regarded my career in authorship at an end. I was so weak that I could not walk over a few squares without great fatigue. The very weight of my body was to me a wearisome burden. My appetite was poor, and my digestion was much impaired.

"About this time my attention was attracted to Compound Oxygen as then administered by Dr. Starkey. I had heard of wonderful cures wrought by its agency; so wonderful, indeed, that had I not personally known the doctor and possessed the fullest confidence in him, I should have been very skeptical on the subject. I tried the Compound Oxygen Treatment, first simply as an experiment. I knew it could not make me worse than I was, and I hoped it might make me better. That it would do for me what it has I had not dared to hope."

How soon did you begin to realize the advantages of the treatment?

"Almost immediately. Its effect was not that of a stimulant, but of a gentle and almost imperceptible vitalizer of the whole system. Soon I began to have a sense of such physical comfort as I had not known for many years. My strength was gradually returning. This slowly but steadily increased. In a few months I was able to resume my pen, and within six months after doing so I completed one of my largest and most earnestly written books, and this without suffering any drawback, and without any return of the old feeling of exhaustion. For more than seven years after this I applied myself closely to literary work, doing, as I believe, the best work of my life."

Did your uniform good health continue during those years, or did you suffer relapses into your former state of exhaustion?

"The improvement was substantial and permanent. Not only had I no return of the old weakness and exhausted feeling, but I was able to work in my study from three to four hours a day. The constant remark I heard from my friends was, 'How well you are looking.' Nor was it only in strength and vitality that I gained by the use of Compound Oxygen. For twenty years I had suffered with paroxysms of nervous headache, sometimes once or twice a week. They were very severe, lasting usually six or seven hours. In a year after I commenced the Compound Oxygen Treatment, these were almost entirely gone. It is now over ten years since I had such an attack. I was, moreover, liable to take cold, and I had frequent attacks of influenza, which always left me with a troublesome cough. It is very rarely that I now take cold. When I do so I at once resort to Compound Oxygen, which invariably breaks up the cold in from one to three days."

And now, Mr. Arthur, what is your present condition of health?

"It is all I have any right to desire or expect at my somewhat advanced age of 75. I sleep well, and am able to take my proper amount of food, enjoying my meals with regularity and heartiness. My digestion, although slow, is good. I do not confine myself to any particular articles of diet, but eat what other people eat, rejecting of course that which seems to be indigestible, or too rich. I am able to attend to my customary literary work, devoting about four hours a day to it, and that without any sense of weariness except as to my eyes. Were it not for the fact that with advancing years I find my eyesight not as good as it formerly was, I should be able to work longer without fatigue. I enjoy moderate exercise, and take it regularly without that feeling of exhaustion which was formerly so depressing."

The testimonials and reports of cases published by Drs. Starkey and Palen in their pamphlets and advertisements, if literally true, show Compound Oxygen to be the most remarkable curative agent yet discovered. Do you believe them all to be genuine?

"I have the most complete confidence in them. For years I have had personal acquaintance with Drs. Starkey and Palen, and exceptionally good opportunities for observing them, as well in private life as in their professional relation to the public. I am sure that neither of them would or could become a party to any fraud or deception. But facts are of more value than opinions. Let me give you a fact. I publish a magazine, and have had an advertising contract with Drs. Starkey and Palen for over six years. During this time I have published monthly from one to six or seven different reports of cases and cures under their new treatment, or over three hundred in all. Now, in every case I have examined the patient's letters, from which these reports were taken, and know the extracts made therefrom, and published in my magazine, to be literally correct. Stronger evidence of genuineness than this cannot of course be given."

Mr. Arthur, some years ago you gave a testimonial in regard to what Compound Oxygen had done for you; and you also have spoken freely in your magazine con-

cerning Messrs. Starkey and Palen. Do you, in view of your present acquaintance with these gentlemen, and your large experience with Compound Oxygen, indorse all you have said?

"I do, most fully, and without any reservation whatever."

And now, as to testimonials. Have you at any time given a testimonial in favor of other special remedial agents or modes of treatment?

"Never. The first and only time that I have permitted my name to be used in commending a curative agent to public notice and confidence is in the case of Compound Oxygen. This I have done, not from solicitation, but voluntarily, and from a sense of duty. I believe that in the use of this newly discovered substance, diseases long classed as 'incurable' may be greatly ameliorated and very often entirely broken, and the sufferer restored to comparative good health. I also believe, that by its use the liability to disease may be removed, and the general health of the community greatly improved. From what I know of its action, as well in my own case as in that of many others, I am satisfied that if promptly used it will arrest the progress of acute pneumonia, consumption, catarrh, and most of the diseases which originate in colds. Believing this, as I certainly do, and from evidence which is too direct and positive to be ignored, I would be derelict in my duty if I did not do all in my power to induce the sick and suffering to seek relief in the use of so beneficent an agent."

Have you seen and known other persons who have used Compound Oxygen, and have you had opportunities of observing to what extent they have received benefit?

"My observation and my opportunities in this respect have been large. I have been much at the office of Drs. Starkey and Palen, and have become personally acquainted with many who have taken the treatment. In almost every case, where a fair trial was given, decided benefit was obtained. Some very remarkable cases in consumption, rheumatism, catarrh, congestion of the lungs, asthma, etc., have come to my personal knowledge, the results of which seemed almost miraculous."

Do you still resort to the Compound Oxygen Treatment, now that your health is restored?

"I do not, as a regular thing. Only, when I have a cold, as I before remarked, I take it for a day or two, and always with good effect. I find that it helps nature to throw off the cold, by imparting the needed vitality to enable the system to do its proper and natural work. It puts nature into condition to defend itself against the attacks of disease. If there are any cases in which persons are disappointed in regard to Compound Oxygen, I believe them to be those in which patients have been so impatient for speedy cure that they have dropped the treatment before it had opportunity to make its impression on the system. Such people will fly from one remedy, consume large quantities of almost every medicine brought to their notice, and yet continue to be invalids. Compound Oxygen does not cure by magic in a moment. If it claimed to, it would be quackery. But I regard it as one of the most wonderful and beneficent curative agencies ever brought to public notice."

For further and fuller answers to the countless inquiries suggested by the above to thoughtful minds, and to those who are solicitous about their own well-being and that of their friends, mail your address to Drs. Starkey and Palen, 1109 and 1111 Grand Street, Philadelphia. The pamphlet you will receive in reply will set forth full particulars.

## Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

All Books on Electricity, cheap. School Electricity, N. Y.

"How to Keep Boilers Clean." Book sent free by James F. Hotchkiss, 88 John St., New York.

Stationary, Marine, Portable, and Locomotive Boilers a specialty. Lake Erie Boiler Works, Buffalo, N. Y.

Wanted, a situation in some Southern State, by a mechanical engineer, who is thoroughly and practically acquainted with all branches of manufacturing metal goods and an expert on special machinery. Will take interest or salary. Address J. G. Letteller, 1005 Wilcox Avenue, Chicago, Ill.

Railway and Machine Shop Equipment. Send for Monthly Machinery List to the George Place Machinery Company, 121 Chambers and 103 Reade Streets, New York.

The Hyatt filters and methods guaranteed to render all kinds of turbid water pure and sparkling, at economical cost. The Newark Filtering Co., Newark, N. J.

Stephens Bench Vises are the best in use. See ad., p. 173.

If you want the best cushioned Helve Hammer in the world, send to Bradley & Company, Syracuse, N. Y. Sleeve nuts, best, cheapest. Pittsburgh Sleeve Nut Wks.

Iron and Steel Drop Forgings of every description. R. A. Belden & Co., Danbury, Ct.

"The Sweetland Chuck." See ad., p. 188.

Hoisting Engines for Mines, Quarries, Bridge Builders, Railroad Construction, etc. Send for catalogue. Copeland & Bacon, New York.

Iron Planer, Lathe, Drill, and other machine tools of modern design. New Haven Mfg. Co., New Haven, Conn.

Pumps—Hand & Power, Boiler Pumps. The Goulds Mfg. Co., Seneca Falls, N. Y., & 15 Park Place, New York.

Fox's Corrugated Boiler Furnace, illus. p. 354. Hartmann, Le Dour & Maeker, sole agents, 134 Pearl St., N. Y.

For Freight and Passenger Elevators send to L. S. Graves & Son, Rochester, N. Y.

Best Squaring Shears, Tinner's, and Cannery Tools at Niagara Stamping and Tool Company, Buffalo, N. Y.

Lathes 14 in. swing, with and without back gears and screw. J. Birkenhead, Mansfield, Mass.

The Best—The Dueber Watch Case.

If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN Patent Agency, 361 Broadway, New York.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description. Send for catalogue.

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J.

Wanted.—Patented articles or machinery to make and introduce. Gaynor & Fitzgerald, New Haven, Conn.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.