

## ENGINEERING INVENTIONS.

An electric alarm for steam gauges has been patented by Messrs. Harvey Carley and Thomas McKenna, of Long Branch, N. J. The invention combines with the steam gauge with metallic binding posts, an electric switch with a binding post, an alarm bell, galvanic battery, circuit plates, etc., so that any increase or decrease of steam beyond certain fixed limits may be signaled at a distant place or office.

A revolving cylinder engine has been patented by Mr. John J. Blair, of Tacoma, Washington Territory. The steam and exhaust passages are formed in the shaft, which is stationary and carries swinging gates, moved in and out of the steamway in the operation of the engine, the object being to have as little reciprocating motion as possible, so reducing friction and obtaining a perfect balance, that the engine may be run at a high speed without vibration.

An ore drier and separator has been patented by Mr. Albert Seneff, of Laramie City, Wyoming Ter. This invention covers an apparatus for slowly passing the ore down a heated shaft of a furnace, on pans or disks, with a slight shaking motion, for shaking and distributing the ore as it goes forward over a long, sloping screen, from which each grade falls separately past or through a blast of air from a blow pipe, by which the earth and other matters are blown away, the ore falling into its distinctive receptacles.

An improved apparatus for raising water has been patented by Mr. Thomas Arthur, of Bangor, Penn. It is more especially for use in mines, and contemplates three tanks at different levels, connected by two bent tubes and a siphon, one of the tubes having a discharge siphon, and the lower tank having a pipe leading to the water, to be raised, an upwardly opening valve, and a discharge pipe with an outwardly opening valve, so water can be raised by atmospheric pressure induced by water flowing through the tanks, siphon, and bent tubes.

## MECHANICAL INVENTIONS.

A saw mill feed mechanism has been patented by Mr. Silas Dickson, of Marcy, Ohio. Instead of the usual toothed rack for driving the carriage, a pitch chain with sprocket wheel is used; the carriage may run each way beyond the saw, and the chain has friction rollers to facilitate its working freely on the teeth of the sprocket wheels.

A machine for planing and shaping wooden stirrup slats has been patented by Messrs. Wilber F. Cowles, of St. Mary's, and James Woolworth, of Sandusky, Ohio. It is a rotary planer, with trimming saws, and with feeding and controlling apparatus, so the slats may be received from the sawing machine, surfaced on the outside, shaped on the inside, and trimmed at the ends, suitably for being finally bent into the form in which they are finished.

## AGRICULTURAL INVENTIONS.

An improved sickle bar and knife has been patented by Mr. Lorenzo Wallace, of Kansas City, Mo. The object is to provide for attaching the knives for cutters to sickle bars, so as to allow the convenient placing and removing of the knives, the sickle bar having a groove on one side with apertures in its bottom, and cross bars in combination with cutter sections, with hook-shaped lugs and a screw pin and nut.

A cotton-worm destroyer, sprinkler, etc., has been patented by Messrs. John D. Lambert, Sr., and John G. Wiggins, of Monroeville, Ala. With a pump, tank, and sprinkling devices is a three-wheeled vehicle, with side bars forming handles at a height suitable for a man to hold and guide the machine. The nozzles are so fitted to the connections that they can swing out or in, to adapt them for sprinkling two rows of plants at the same time, whether planted widely apart or close together.

## MISCELLANEOUS INVENTIONS.

An improved fire escape has been patented by Mr. William Jensen, of Victoria, British Columbia. It is a simple, durable, and cheap rolling ladder escape, portable from window to window, incombustible, and is light and strong without needing side braces.

A button hook has been patented by Mr. James C. Beetle, of New Bedford, Mass. The object is to provide a hook by means of which shoes can be buttoned without requiring the person to stoop; the button hook is pivoted on the end of a handle, and in combination therewith is a spring for holding the hook at right angles to the handle.

An improved ax has been patented by Mr. Richard R. Pace, of Lineville, Ala. The invention provides for an opening in the ax body, from which a screw spindle extends downward, and is made to hold the blade of the ax firmly on the ax body, but so that the bit or blade may be removed when worn out and new ones inserted.

An improved treadle-power device is the subject of a patent issued to Mr. George A. Greene, of Taylor, Texas. It consists in so arranging a pair of treadles that the operator may stand erect and work the machine by a natural walking motion, with contrivances that also allow the power of the hands and arms to assist the legs when desired.

A boot and shoe last has been patented by Mr. William Pond, of Kansas City, Mo. The invention consists in making lasts with the outer edges of the bottoms raised, and inclined or beveled inwardly, to take the place of leather removed by the workman in beveling the edges of the insole, thus giving a better surface for work on the outer sole.

A sad iron holder has been patented by Serena M. Carnes, of New York city. This invention relates to improvements in connection with a former patent of the same patentee, and consists in attaching the clasp springs of the holder to the under side of the pad in such way that the pad will be free to open away from the handle of the iron when the hand of the user is removed, so helping to keep the holder cool.

A folding chair has been patented by Mr. Jonathan Hill, of New York city. It consists of pairs of legs crossed and pivoted together so that the seat-board projects farther to the front than usual, and the seat is locked so that it cannot move either up or down about its central pivot, and grooves or sliding connections at the back, with their objectionable friction and loss of strength, are avoided.

A sleigh-runner attachment for vehicle wheels has been patented by Mr. Frank J. Larkin, of Kenosha, Wis. A runner is shaped the same as a sleigh-runner, and two wedge-shaped pieces, having a longitudinal groove in the bottom, adapted to receive the runner, can be adjusted thereon according to the diameter of the wheel, so the runner can be adjusted to wheels of any diameter.

## 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 assembly as Thursday morning to appear in next issue.

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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 Doux & Macker, sole agents, 134 Pearl St., N. Y.

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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, 261 Broadway, New York.

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

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Catalogues free.—Scientific Books, 100 pages; Electrical Books, 14 pages. E. & F. N. Spon, 35 Murray St., N. Y.

Curtis Pressure Regulator and Steam Trap. See p. 142.

Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 141.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 142.

American Fruit Drier. Free Pamphlet. See ad., p. 158.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 20,000 Crank Shafts and 15,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

Brass & Copper insheets, wire & blanks. See ad. p. 153.

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Friction Clutch Bellets. D. Frisbie & Co., Phila. Pa.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 153.

Sewing Machines and Gun Machinery in Variety. The Pratt & Whitney Co., Hartford, Conn.

The Porter-Allen High Speed Steam Engine. South-  
ark Foundry & Mach. Co., 420 Washington Ave., Phil. Pa.

## Special.

## JUDGE FLANDERS, OF NEW YORK.

The Hon. Joseph R. Flanders enjoys the eminent distinction of being one of the most prominent lawyers in New York. Born and brought up in Malone, Franklin County, on the edge of the Adirondack region, he early devoted himself to the practice of law, and took an active part in the politics of the State. He was for years judge in Franklin County, and served with distinguished ability several terms in the Legislature of New York. He was for a long time in partnership, in the practice of law, with the Hon. W. A. Wheeler, who was Vice-President of the United States during the Presidency of Mr. Hayes. Judge Flanders was a member of the famous committee appointed about thirty years ago to revise the Constitution of the State of New York. He always has been a staunch and fearless advocate of temperance reform, and of purity in political affairs. During the controversy which led to the war, he was conspicuous for his consistent and forcible advocacy of "State rights," always taking the ground of the statesman and jurist, and not affiliating with the demagogues or noisy political charlatans on either side.

In his present appearance Judge Flanders' countenance gives no indication of the remarkable physical experience through which he has passed. No one would suppose, from seeing him busily at work in his law office, a cheerful, hearty, and well preserved elderly gentleman, that he was for many years a great sufferer, and that his emancipation from slavery to severe disease was a matter of only recent date. But even so it is. Visiting him a few days ago in his well appointed law offices in "Temple Court," which is one of the new twelve story office buildings of the Metropolis, we found him disposed to engage in conversation regarding his illness and his complete restoration to health. The information which he communicated in regard to this extraordinary case was substantially as follows:

"For many years I suffered from weak digestion and the dyspepsia consequent upon it. My health was not, at any time since I was twenty-one years of age, vigorous; although by persistence and close application I have been able in most of the years to perform a large amount of work in my profession. Gradually I declined into a state of physical and nervous prostration, in which work became almost an impossibility. In 1879 I was all run down in strength and spirits. Energy and ambition had entirely departed. That summer I went to Saratoga, and took a variety of the waters, under the direction of one of the resident physicians. But instead of receiving any benefit I grew weaker and more miserable all the time I was there.

"In September I returned to New York in a very reduced state. I was incapable of work, and hardly able to leave the house. Soon after my return I suffered a violent chill, which prostrated me to the last degree. But under medical treatment I gradually rallied, so that in the course of the winter and spring I managed to do a little work at my office in my profession. During this time, however, I was subject to frequent fits of prostration, which kept me for days and weeks at a time in the house.

"So I kept on until the summer of 1882. I tried a variety of medicaments which kind friends recommended, and was under the care of several physicians from time to time. In the latter part of the summer I went to Thousand Islands, where I staid several weeks with friends. But I found the atmosphere did not agree with me. Soon I had a chill, not a severe one, yet in my state it added to my weakness and general discomfort. Several days after this I had another chill, which totally prostrated me.

"As soon after this as I was able to travel, I went to Malone, my old Franklin County home, intending to stay for a while among relations and friends, and to consult my old family physician. But I found that he was away in the White Mountains with Vice-President Wheeler, my old friend and former law partner. They did not return to Malone until three days before I left there. Of course I consulted the physician. He neither said nor did much for me. I came away, feeling that the battle of life was nearly ended. The next time I saw Mr. Wheeler in New York, he told me that the doctor had said to him that he never expected again to see me alive. When I arrived at home in September, it was in a state of such exhaustion that I was unable to leave home except on bright and sunny days, and then only to walk slowly a block or two.

"Meanwhile, my son, who had been in Massachusetts, made the acquaintance of a country postmaster in that State, an elderly gentleman, whose prostration seemed to have been as great as my own, or nearly so. This gentleman had been taking the Compound Oxygen Treatment, and he had received from it the most surprising advantage. My son wrote frequently, and urged that I should try this treatment. But I had lost all faith in remedies. I had tried many things, and had no energy to try any more. But in September my son came to New York, and persuaded me to visit Dr. Turner, who is in charge of Drs. Starkey and Palen's office in New York, for the Compound Oxygen Treatment. My going there was not because I had any faith in this treatment, but to gratify my son's kind importunity. When Dr. Turner examined my case, he thought I was far gone that he hardly dared to express the faintest hope.

"On the seventh of October I commenced taking the treatment. To my great surprise I began to feel better within a week. In a month, I improved so greatly that I was able to come to my office and do some legal work. I then came to the office regularly except in bad weather. On the nineteenth of December a law matter came into my hands. It was a complicated case, promising to give much trouble, and to require very close attention. I had no ambition to take it, for I had no confidence in my ability to attend to it. I consented, however, to advise concerning it, and to do a little work. One complication after another arose. I kept working at it all winter and into the spring. For three months this case required as continuous thought and labor as I had ever bestowed on any case in all my legal experience. Yet under the constant pressure and anxiety I grew stronger, taking Compound Oxygen all the time. In the Spring, to my astonishment, and that of my friends, I was as fit as ever for hard work and close application.

"My present health is such that I can without hardship or undue exertion attend to the business of my profession, as of old. I am regularly at my office in all kinds of weather, except the exceedingly stormy, and even then it is seldom that I am housed. My digestion is good, my sleep is as natural and easy as it ever was, and my appetite is as hearty as I could desire.

"A remarkable feature of my case is the hopelessness with which Dr. Starkey viewed it at the outset. It was not brought to his personal attention until after, in Dr. Turner's care, I had begun the treatment. Then my son wrote to him, setting forth my condition, and asking him to interest himself individually in endeavors for my benefit. Dr. Starkey replied that he had carefully examined the case, as set before him, and that there was

evidently nothing that could be done. He saw no possible chance of my being made better, and doubted if I could even be made more comfortable. 'I am very sorry,' he wrote, 'to give such a hopeless prognosis, but conscientiously I can give no other.' What would Dr. Starkey have said, had he then been assured that in less than a year from the time of his writing I should be thoroughly restored to as good health as ever I had, and that I should be able to attend regularly to the arduous duties of my profession?

"Do I still continue to take the Treatment? No, not regularly, for my system is in such condition that I do not need it. Once in a while, if I happen to take cold, I resort to the Treatment for a few days, and always with certain and beneficial effect.

"My confidence in the restorative power of Compound Oxygen is complete; as also it is in the ability and integrity of Drs. Starkey and Palen, and of Dr. Turner, who is in charge of their New York Depository; otherwise I should not allow my name to be used in this connection. I have thus freely made mention of the history of my case as a duty I owe of rendering possible service to some who may be as greatly in need of physical recuperation as I was."

From the above it would seem that even the most despondent invalids and those whose condition has been supposed to be beyond remedy, may take courage and be of good cheer. For the most ample details in regard to Compound Oxygen, reference should be made to the pamphlet issued by Drs. Starkey and Palen, 1109 and 1111 Girard Street, Philadelphia. On application by mail, this pamphlet will be sent to any address.

## NEW BOOKS AND PUBLICATIONS.

THE CREATORS OF THE AGE OF STEEL. By W. T. Jeans. Charles Scribner's Sons, New York. Price, \$1.50.

This is a volume of sketches, anecdotal and somewhat historical, but well adapted to suit the popular taste, for it touches upon the most prominent points in the lives of Sir Henry Bessemer, Sir William Siemens, Sir Joseph Whitworth, Sir John Brown, Mr. S. G. Thomas, and Mr. G. J. Snelus. These are all names of men who have become known to the world since 1850, in connection with the wonderful development of the period in metallurgy, although some of them, and particularly the late Dr. Siemens, have been equally distinguished by eminently valuable researches in many other directions. The book is a particularly good one for the reading of boys engaged in any mechanical employment, its facts being such as are calculated to lighten studious labors and stimulate ambition.

BULLETIN DE LA SOCIETE INTERNATIONALE DES ELECTRICIENS, Paris: Librairie Gauthier-Villars. Price, 27 fr. per annum.

The first number of Vol. I. of this periodical contains the history of the formation of the society, its constitution and by-laws, together with a list of more than 1,200 members. As the name indicates, the society is open to all nationalities, irrespective of the occupation of the applicant; any one in any way interested in electricity may become a member. The Bulletin appears monthly, and will contain the proceedings of the society, together with contributions from men of science.

STEEL AND IRON. By William Henry Greenwood, F.C.S., Assoc. M.I.C.E., M.I.M.E. Cassell & Company, London and New York. 536 pp. Price \$2.

This is one of a series of manuals of technology edited by Prof. Ayrton, F.R.S., and R. Wormell, D.Sc., M.A. The general student and the intelligent workman will find in this volume a clear and comprehensive manual of practical information, and of the scientific principles upon which the practice rests, in the metallurgical and mechanical treatments between the iron ore and the production of the finished bar, rail, or section. The author disclaims endeavoring to compass such minute detail as would be necessary to cover all particulars of the whole range of such operations, but the vast field of practical knowledge which the title suggests has evidently been faithfully gleaned, the progress of recent years intelligently considered, and about as much well-digested information given thereon as could well be got into a treatise of such dimensions.

HISTORY OF THE UNITED STATES IN RHYME. By Robert C. Adams. D. Lothrop & Co., Boston.

## Notes &amp; Queries

## HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at the office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

(1) C. F. P. asks for an ink that will copy well in an ordinary letter press and will not gum in a stylographic pen? A. We would recommend you to use an ink made by dissolving one part of commercial nigrosin, soluble in water, in 80 parts of water, and to this add a sufficient quantity of glycerine or sugar to produce a copying ink.