

SEWING MACHINE.—E. Hodgkins, Marlboro, N. H.—This invention relates to certain new and useful improvements in single thread sewing machines, and it consists in a novel feed mechanism, an improved means for giving a proper degree of tension to the thread, and an improvement in the needle plate, whereby an improved sewing machine of the class specified is obtained.

HORSE RAKE.—Frank Holden, Litchfield, Ill.—This invention relates to a new and improved revolving horse rake, and it consists in a novel construction of the same, and a peculiar arrangement of parts, whereby several advantages are obtained.

SMUT MACHINE.—W. W. Connor, Nobleville, Ind.—This invention relates to a new and improved machine for scouring smut and other impurities from grain, and separating the former from the latter.

HARVESTER.—James M. Kellar, and Martin L. Kellar, Buckeye, Iowa.—This invention relates to a new and improved harvester, of that class provided with a horizontal rotary cutting wheel, and it consists in a peculiar construction and arrangement of parts, whereby several advantages are obtained.

BRICK MACHINE.—A. La Tourrette, Waterloo, and Seth H. Smith, Venice, N. Y.—The object of this invention is to obtain a simple and cheap machine for pressing and molding bricks, one which may be operated by a very moderate expenditure of power, and still perform its work expeditiously and in a superior manner.

METAL TIP FOR SUSPENDING BROOMS, MOPS, AND OTHER ARTICLES.—M. C. Hawkins, Edenboro, Pa.—This invention relates to a new and improved metal tip for suspending brooms, mops, and other articles for household use, which are provided with wooden handles. The invention consists in striking up out of a single piece of metal or casting a ferrule which is driven on the end of the handle, and received by a rivet or provided with an internal screw to screw on the handle, the outer end of the ferrule being in the form of a loop to catch over nail or hook driven in the wall.

MOLD FOR CASTING ALUMINUM PLATES FOR ARTIFICIAL TEETH.—James B. Bean, Baltimore, Md.—In this invention the contractibility of the aluminum used for casting the plates is compensated by the expansibility of the molds in which the plates are cast, a new composition being used for that purpose.

WATER GAGE.—James C. Walker, Waco Village, Texas.—In this invention several tubes pass through the boiler, some under and some above the water, through which currents of air are induced by the heat of the water or steam surrounding them. These currents are made to sound musical notes, and thus indicate the condition of the steam and water in the boiler.

CULTIVATOR.—S. D. Tuttle, and John H. Gans, Eaton, Ohio.—This invention relates to a new and improved device for cultivating corn, cotton, and other crops, which are grown in hills or drills. The invention consists in a novel construction and arrangement of parts, whereby a very desirable implement for the purpose specified is obtained.

MOP WRINGER.—Duane Peck, Rochelle, Ill.—This invention relates to a new and improved device for expressing moisture from mops, while using the same, and it consists in the employment or use of pressure rollers in connection with a treadle, all arranged in such a manner as to admit of the mop being readily adjusted between the rollers, and operated upon by them so as to effectually express the moisture therefrom.

DEVICE FOR EXTRACTING STUMPS, LIFTING STONE, ETC.—G. W. Pressey, Hammon, N. J.—This invention relates to a new and improved device for extracting stumps, and lifting stones and other heavy bodies. The invention consists in a novel arrangement of pawls with hand levers, and a lifting bar, whereby a very simple, powerful, and efficient lifting device is obtained. The invention also consists in an improved hook or fastening for connecting the lifting bar with the article to be raised.

DEVICE FOR PACKING COTTON.—H. D. Stover, and J. W. Hutchison, N. Y. City.—This invention relates to a new and useful improvement in packing cotton, and is designed to supersede the ordinary baling process. The invention consists in compressing or packing the cotton into wooden barrels, whereby several advantages are obtained over the present mode of compressing and baling.

METHOD OF SECURING ARTIFICIAL TEETH TO CAST PLATES.—James B. Bean, Baltimore, Md.—In this invention a plate of aluminum or other similar metal is employed, having recesses into which the teeth are fitted. A groove is left behind the teeth, between them and the plate, into which pins attached to the teeth project, which is afterward filled with tin under pressure, the teeth being thus firmly secured to the plate.

CAR COUPLING.—Freeman Moore and John A. Baker, Carrollton, Ohio.—This coupling consists of a hinged latch, which is arranged within the throat of the draw head, and connected to a forked lever which is acted upon by a spring, and pivoted in such a manner as to adapt the link or shackle to be automatically coupled when the cars come together, or to be instantaneously uncoupled in the event of one of the trucks running off the track. Provision is also made for operating the latch by means of a lever, so that the link can be uncoupled by a person standing upon the platform, the desired end being thus accomplished without exposing the body or limbs to danger.

DITCHING MACHINE.—A. La Tourrette, Waterloo, N. Y.—This invention relates to a new and improved machine for making ditches, and it consists of a novel arrangement of an endless chain of spades or scrapers, whereby the latter may be adjusted to excavate the earth at a greater or less depth, as may be desired, the machine rendered capable of extricating itself with the greatest facility in case of the spades or scrapers meeting with an obstruction, and also allowed to travel and work in a curved path, in cases where a curved ditch is required.

SELF-ACTING PLOW HANDLE.—John L. Keason, Laconia, N. H.—This invention has for its object to furnish an improved means by which a plow or plows may be connected to a wagon so as to be held and operated automatically.

BRUSH CLAMP.—Arthur Huston, Bristol, Me.—This invention has for its object to furnish an improved brush clamp so constructed and arranged as to be easily attached and detached, which will give the brush a flat or fan shape, which will prevent the brush from becoming worn pointed, and which will render it unnecessary to wind a new brush as is now necessary.

THIMBLE SKEINS FOR AXLES.—John A. Williams, Elizabeth, Ill.—This invention relates to an improved thimble skein for axles, and consists in turning the socket on the belt end of the skein, and connecting the skeins by a rod having a right and left-hand thread furnishing a substantial brace to the axle. The thimble is also open at the extremities and the belt end of the skein and connecting rod are adjusted to the under side of the axle.

MECHANICAL MOVEMENT.—C. D. Snell and J. W. Penny, Mechanic Falls, Me.—This improvement relates to a mechanical movement, and consists of a device for running shafting at any angle without the use of bevel gearing.

HORSE COLLAR.—T. J. Shipley and W. A. Moody, Montezuma, Iowa.—This invention relates to an improvement in horse collars, and consists in a rubber spring adjusted in a hollow pad or shoe and attached to the sides of the collar, which is disconnected at the bottom by hooks secured into the walls of the collar.

COMBINED CRANK, FRICTION WHEEL, AND BRAKE.—R. M. Van Sickler, New York City.—This invention has for its special object to improve the construction of the improved portable elevator, patented by the same inventor Feb. 12, 1867, but it is equally applicable wherever a crank and brake are used.

WASHING MACHINE.—John Vail, Yankee Jim's, Cal.—This invention has for its object to furnish a simple and convenient machine for washing clothes, which shall be easily operated and will do its work quickly and thoroughly.

BALING PRESS.—Thomas D. Guthrie, Galva, Ill.—This invention has for its object to furnish an improved press, designed especially for baling broom corn, but equally applicable for baling other substances, which shall be simple in construction, easily operated, and efficient in operation.

HORSE POWER.—Thomas Wiltsie, Jr., Panama, N. Y.—This invention has for its object to furnish an improved horse power, designed especially for operating a drag saw, but equally applicable for other uses, and which shall be simple in construction, durable, and effective in operation.

Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek information from us; besides, as sometimes happens, we may prefer to address the correspondent by mail.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for an advertisement at 50 cents a line, under the head of "Business and Personal."

All reference to back numbers should be by volume and page.

F. C., of La., asks, "Will a common butterfly valve regulate the engine better by being placed near the steam chest than if it is placed say eight feet from the chest?" The speed will be regulated more uniformly with the valve near the ports.

E. H., of Mo., says: "I hope you will favor your subscribers with a list of articles of manufacture, machinery, etc., for which prizes have been awarded at the Paris Exposition. Will you be kind enough to state in your column of answers to correspondents to whom premiums were awarded for artificial stone, provided the information is at your command." We regret that no report other than that first sent by the cable has ever been published; soon as it is we shall give it to our readers. There seems to be some mismanagement in this matter.

J. C. J., of Va., complains that there is an oxide of iron in the water from which he evaporates his salt which gives the salt a reddish brown color. He desires a remedy, and we think a small quantity of lime water will precipitate the iron from the brine.

C. N. M., of Pa., desires information relative to a treatise on arithmetic suitable for beginners. We can recommend nothing better than Greenleaf's Arithmetic.

H. L. W., of Pa., asks for a "reliable rule for finding the horse-power of a steam boiler, applicable to the different modes of location, fire surface, etc. Steam pumps are being generally introduced in this region to which the steam must sometimes be carried a long distance. How much waste is there in carrying steam 1,000 feet?" The rule for calculating the horse-power of a boiler varies somewhat with its construction. It is safe, however, to allow fifteen square feet of fire surface to the horse-power, and six square inches of grate surface. If your steam pipes are of ample area, and well covered with felt or other good non-conducting material you will suffer but little perceptible loss from condensation in carrying steam through 1,000 feet of pipe.

E. N. C., of N. H., asks if there is any "cheap material of which fires can be constructed which will withstand intense heat without continually burning out. They would be kept at a red heat. Iron will not stand." There is nothing we know of better than fire brick or fire clay.

R. W. M., of N. H.—"How can boilers which have begun to rust be prevented from further rusting?" If the rust is on the outside, coat it with asphaltum dissolved in spirits of turpentine. For insiderrusting we know of no certain remedy.

G. T. W., of Miss., asks for a process of making wine from the "sour orange." We are not acquainted with the qualities of that fruit, but probably no process very different from that employed in the grape wine manufacture would be necessary. A few experiments could determine the matter.

G. J., of Me.—"What effect does frost have on cold short iron and on red short iron; and are these qualities most brittle when expanded by heat or when contracted by cold?" Cold short iron when hot is tough, but when cold, brittle. Directly the reverse is true of red short iron. Railroad bars composed of these two differing irons would, we think, be quite unreliable.

J. M., of Conn., asks if it requires the "same degree of heat to melt copper when largely alloyed as when pure." Alloys of copper, zinc, and tin and all other similar alloys require less heat to fuse them than copper.

S. S. E., of Ky.—By addressing Mr. John A. Roebling at Trenton, N. J., you can undoubtedly get a copy of his report on the East River Bridge. It has been published.

J. E. B., of Ohio, asks us which of two air guns will be most effective, one with the air cylinder tapering toward the barrel containing the ball, or one the end of the cylinder of which is square; a piston in the air cylinder compressing the air. He sends diagrams illustrating the two forms. We reply that the static pressure would be the same in both cases, but if, as appears, the question is which form is best adapted to the delivery of a certain amount of air in a certain time the funnel-shaped end of cylinder is preferable.

J. P. J., of Pa.—The "bogies" of the English locomotive engineers is simply and only the four-wheeled truck in use in this country for supporting the forward end of the locomotive. It was invented by John B. Jervis, C. E., author of a treatise on railways, in 1831. Wm. Mason, of Taunton improved the truck by spreading the two axes sufficiently to allow the cylinders (outside) to stand on a level with the center of the driving wheels.

J. D. R., of N. Y.—"What rule is there for approximating the number of revolutions engines are intended to make, while designing them, so as to calculate the horse-power?" "What advantage is there in a double threaded screw?" The number of revolutions determined on in the designing of steam engines is governed by the use to which the engine is to be put, the space and weight, etc., allowed. Those engines which give the best results have a speed of piston of from 350 to 450 feet per minute. Correct data to work from in designing engines can be furnished by a first-class consulting engineer. As to double threaded screws their use is to give a fast thread without cutting away too much of the cylinder on which they are formed. We have seen not only double, but triple, quadruple and quintuple screws cut, where rapid longitudinal motion was required with a comparatively slow rotary motion. While the single thread would be wide apart and quick, the double or triple thread would be close, looking like a fine thread, yet equally as fast.

Business and Personal.

The charge for insertion under this head is 50 cents a line.

Parties having a Paper Mill for sale or lease will please address, with particulars, Wm. H. Gandy, Lambertville, N. J.

Capitalists, seeking investments, are invited to investigate the merits of "Cotton Tie," illustrated in present number.

Wanted, manufacturers for the best double-shovel (iron) plow in the market. Address Ray & Shalters, Alliance, Ohio.

One of the patented articles included in the property offered for sale by J. I. D. Bristol, in another column, is a combined tea and water urn, which has been tested by one of the editors of this paper, with satisfaction. The dies and other appropriate tools for making the article are offered for sale, with the patent, and would afford a good business.

Send Circulars of the best Oat extracting or separating machines and Paper Sack Flour Packing Machines in the world to W. Hill Box 13, Marshall Town, Marshall Co., Iowa.

Two Valuable Patents for sale or a partner wanted to manufacture. Address E. Fitzki, Quartermaster Gen'l's Office, Washington, D. C.

Wanted to Buy—a cheap Hand or small Horse-power Spinning Machine, for various kinds of fibers, to work a number of spindles. Also, cheap hand or horse-power machinery for preparing the fiber for it. Also, one for making twine or cord. Address P. O. Box 202, Yonkers, N. Y.

Monopoly in pivoted Connecting Links—Four Patents—the last just being issued. Open for manufacturing on royalty, or for sale. Address K. & C., care Holske Machine Co., 528 Water st., New York.

Eureka Cultivator (see illustration page 88), for corn or cotton, the greatest labor-saving production of the age. Capitalists, Planters, and patent right dealers investigate the best selling patent of the times. Pamphlets furnished. Address Omar Arnold, Mount Ida, Wisconsin.

Manufacturers of Improved Rat and Mouse Traps, Butchers' Scales, or other Hardware and Tools will send lists (prepaid) to Ryan & Oliver, Toronto, Canada.

Artesian and Petroleum Wells.—The great Earth Boring Machine with which a hole, from nine inches to three feet in diameter, can be sunk to a depth of 3,000 feet, through solid rock, can now be seen at 222 Pearl street, New York City.

NEW PUBLICATIONS.

GOD'S GLORY IN THE HEAVENS.

A very interesting and curious work on astronomy from the pen of Wm. Leitch, D. D., has just been issued by the publishing house of Alexander Strahan, London. The work is copiously illustrated, and the writer's object seems to be to harmonize the arguments of theologians with the discoveries of Astronomers. The work presents a survey of recent astronomical discoveries and speculations, in connection with the religious questions to which they give rise. George Routledge & Son, 416 Broome street, New York.

PROGRESS OF THE WORKING CLASSES.

Statistics and interesting statements of the condition, habits, and sentiments of the working classes of London, from 1831 to 1867. Strahan, publisher. For sale by George Routledge & Son, 416 Broome street, New York.

HAND BOOK ON COTTON MANUFACTURES.

A work on the practical art of manufacturing has been much needed. From a cursory examination of a new hand book before us, and from the reputation of the author, we think every cotton manufacturer, manager, overseer, or operative will be benefited by having a copy for reference. It contains rules and examples for finding the speed and dimensions of all the wheels, pulleys, rollers, etc., necessary to produce any desired result in each and every operation in a cotton mill; rules for finding all the necessary drafts, twist, doublings, and allowance for loss in working, to produce any given number of yarn, etc., etc. The latest and most approved machinery and some of the largest and handsomest cotton factories in the country are illustrated by engravings. James Geldard, the author, has had some thirty years practical experience in cotton manufacturing. John Wiley & Son, 535 Broadway, New York, publishers.

POST ROUTE MAP.

We are indebted to George W. McLellan, Second Assistant Postmaster General, for a copy of a splendid postal map of the New England States. Those of New York and the Middle Atlantic States are in progress and will shortly appear. Besides the distribution to postmasters for the service of the Department, these maps are on sale to the general public, and may be procured at the Post-office Department (Second Assistant Postmaster General), or from the sole agents in Philadelphia, New York (D. Van Nostrand), Boston, and Portland.

POPE'S ESSAY ON MAN.

A new and finely illustrated edition (15 engravings) of Pope's Essay has just been issued from the press of S. R. Wells, 889 Broadway, New York. Whatever may be said by theologians concerning the orthodoxy of this great poet's religious views, his Essay on Man will continue to be regarded one of the masterpieces of English verse, and will attract the attention of, and instruct the intelligent and thoughtful. Price, bound \$1; paper covers, 50c.

THE ELEMENTS OF EUCLID AND LEGENDRE, with Elements of Plane and Spherical Trigonometry. By Lawrence A. Benson.

The author of this treatise has prepared and published a text book adapted for the use of schools and colleges, the plan of which being the reducing of geometrical science to the smallest compass, such proportions are only introduced in it as are required to substantiate the principal theorems by which the principles of geometry have practical applications in Trigonometry, surveying, mechanics, engineering, navigation, and astronomy. A new and important feature of this work is the establishment of all geometrical propositions by the direct method of reasoning, dispensing entirely with the *reductio ad absurdum* or indirect demonstration, the author's argument being that every true proposition must be susceptible of proof without any such circuitous process as that heretofore employed for demonstrating certain propositions. The work before us bears the commendation of President Webster and Prof. Docharty, of the College of the City of New York; Prof. J. G. Fox, principal of the Cooper Union Free Schools; also the superintendent of the Board of Education of this city, and has been entered on the list of text books for the ward schools of this city.

THE HISTORICAL MAGAZINE, and Notes and Queries concerning the Antiquities, History, and Biography of America. Edited by Harry B. Dawson, Morrisania, N. Y.

The last number of this periodical is at hand, containing the usual amount of curious and interesting matter. The magazine is under the editorial management of Mr. Dawson, who has had long previous service in the field of American antiquities. It is handsomely gotten up, and serves as a repository for the preservation of valuable historical matter which without it would be irretrievably lost. We commend the work to the notice of the curious antiquarians and historical students.

A TREATISE ON THE SCREW PROPELLER. By John Bourne, C. E. London. D. Van Nostrand, 192 Broadway.

We have received the closing number—XXIV.—of this highly valuable treatise. Mr. Bourne has done a notable service to marine engineers in the preparation of this series. The illustrations, particularly those of engines, are excellent, and will prove of much service to all interested in the construction of screw engines; and the text is written plainly, forcibly, and lucidly.

THE SPORTSMAN AND NATURALIST IN CANADA.

Messrs. Hunt & Blackett, 13 Great Marlborough street, London, have recently published in most elegant style the natural history of the game, game birds, and fish, which abound in Canada. The work is copiously illustrated with beautiful colored engravings of game, and the different kinds of fish which abound in the forests of Canada. The author, Major W. Ross King, says, in the preface: "During a sojourn in these regions, extending over a period of three years, constantly rod in hand or roaming the woods with dog and gun, I habitually recorded in my note-book memoranda on the haunts and habits of the birds and animals which I have endeavored to describe in the succeeding pages; and I can only hope that my jottings may be useful to those who read them, with the view of themselves enjoying the same delightful and interesting to those who would recall similar bygone days of a more able recreation." Geo. Routledge & Son, 416 Broome street, New York, have the work for sale.

EXTENSION NOTICES.

William Wright, of New York City, having petitioned for the extension of a patent granted to him the 18th day of January, 1854, for an improvement in operating cut off valves of steam engines, for seven years from the expiration of said patent, which takes place on the 3d day of January, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 16th day of December next.

John Donlevy, of New York City, having petitioned for the extension of a patent granted to him the 8d day of January, 1854, for an improvement in method of forming plates for polychromatic printing, for seven years from the expiration of said patent, which takes place on the 3d day of January, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 16th day of December next.

Edward A. Tuttle, of Brooklyn, N. Y., having petitioned for the extension of a patent granted to him the 3d day of January, 1854, for an improvement in hot air register, for seven years from the expiration of said patent, which takes place on the 3d day of January, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 16th day of December next.