

tion, and effective in operation, doing its work better, and with more ease to the operator than the forks now in use.

SAIL BENDER.—Henry W. Ketcham, New York city.—This invention has for its object to furnish an improved sail bender or detachable metallic seizing, by means of which the sail may be securely attached to the hoop in such a way that it may be securely held and easily and quickly detached when required.

CIGAR TRIMMER.—P. A. La France, Elmira, N.Y.—This invention relates to a new machine for trimming the ends of cigars, and especially the thick ends, which, for cigar makers' use, is of great importance to have nicely executed, as thereby also the length of the cigars is regulated. The invention consists of a grooved bed, on which the cigars is supported, and of two cutters, operating like shears, one of them being secured to the edge of the bed, while the other is pivoted to be swung up and down at will; a spring keeps the knives apart, so that the machine is always in a position ready for action.

VELOCIPÈDE.—William Denovan, Philadelphia, Pa.—This invention relates to a new velocipède, which is propelled partly by muscular, partly by spring power. It consists in a new manner of connecting the swinging seat with a crank axle and with a spring, whereby the aforementioned object of combined muscular and spring propulsion can, in a satisfactory manner, be obtained.

MACHINE FOR FILLING BOTTLES.—James Alcorn, Charleston, Mass.—The object of this invention is to afford a simple and effective means for filling bottles with fluid, whether the latter is under pressure or not, as the circumstances of the case may render most convenient.

MACHINE BELTING.—George Hurn and Daniel Hurn, London, England.—This invention relates to an improvement in the manufacture of driving belts for machinery, and it consists in forming the same from a web and warp of leather, woven with selvages without joints or splices, and with a double face or running surface.

HAY TEDDER.—M. D. Myers, Frankfort, N.Y.—This invention consists chiefly in attaching the tines to a shaft, that has its loose bearings in the cranks of a rotating shaft, and in connecting the tine-shaft with a stationary drum, or disk, that is arranged concentrically around the rotating shaft, by means of an endless band or chain, thereby the tine-shaft is, while it is being carried around the rotating shaft, also turned around its own axis in such manner that the tines will always remain in the same, i. e., nearly perpendicular, position.

STEM-WINDING WATCH.—Vitalis Himmer, Brooklyn, N. Y.—The object of this invention is to produce a stem-winding watch, which is so arranged that the spring cannot be overwound, and that, if it is wound up to the requisite limit, the gearing connection between the drum and the stem will be automatically and effectually interrupted. It consists more particularly in the use of a pin, fitted through the wheel that is mounted on the spindle of the spring, and in a fingered wheel, resting upon, and turning with the drum; during the revolutions of the aforesaid spindle, while the spring is being wound up, the pin is carried round and against the fingers of the wheel on the drum, thereby turning the said wheel; when the spring is wound up, the pin again strikes the fingered wheel, and travels upon an inclined edge formed thereon; it is thereby raised, and pushes the wheel that connects the spindle wheel with the stem up, out of gear, so that the stem can be turned at pleasure without affecting the spring.

GLUE POT.—Joseph Tinney, Westfield, N. Y.—This invention relates to a new glue pot, in which the vessel for containing the glue is made annular or otherwise, so that a pipe is formed with, in which the water from the lower vessel may stand; thereby additional heating surface is not only provided, but also an escape for the surplus steam, and an open water vessel is produced to allow the wetting of a sponge or cloth for cleaning the surplus glue from the work, and for washing the brush without removing the upper glue cup.

FISHING TACKLE.—Ferdinand Tellmann, Stamford, Conn.—This invention relates to a new sinker attachment for fishing tackle, and consists in the use of a hollow sectional sinker, which is so arranged, that it will be without corners, projecting flanges, and such devices, which might serve to retain it on the ground; the knots formed at the junction of the handle line with the hook cords are all concealed within the hollow sinker, and can, therefore, not be caught by projecting stones, shells, or other obstructions.

DOUGH BOX FOR CAKE MACHINES.—Daniel M. Holmes, Williamsburgh, N. Y.—This invention has for its object to improve the construction of the dough boxes of that class of machines in which the dough is cut off into cakes or slices as it is forced out through orifices in the bottom of the box; and it consists in the construction of said orifices and of the parts connected therewith, so as to make the machine more accurate and satisfactory in operation, cutting off the cakes or slices of uniform thickness.

PAGING AND NUMBERING MACHINE.—Philip Koch and Gottlob Schule, New York city.—This invention relates to a new machine for paging blank books, and for numbering bank notes, bills, checks, and other suitable articles; and the invention consists, first, in a new apparatus for turning the printing roller, which is turned or set when it arrives at its highest elevation by a lever, which can be adjusted so as to turn the said roller one-tenth or one-fifth part of a revolution, as may be desired, or not at all, if the same figure has to be continually printed. It consists also in a novel device for inking the printing type, and in a new manner of operating the said device. The inking roller is applied to the figure which is to print, immediately after it has been set by the aforesaid setting device.

CARPET STRETCHER.—William Brown, New York city.—This invention has for its object to furnish a simple, convenient, and effective self-clenching carpet stretcher, which shall be so constructed and arranged as to require much less space for operating it than the ordinary carpet stretchers while, at the same time, drawing the carpet up closer to the side walls of the room than is possible with carpet stretchers constructed in the ordinary manner, which can be handled in much less time than other stretchers, and requires no set screws to clamp the carpet in the jaws of the stretcher.

NEEDLE WRAPPERS.—Charles Bartleet James, Redditch, England.—This invention relates to improvements in needle cases and wrappers for packing needles for market and use, whereby it is designed, by the employment of an outer case and an interior packet, arranged in a peculiar manner, to facilitate the removal of the packet when access to the needles is desired.

BREECH-LOADING NEEDLE GUNS.—Jean Mathieu Deprez, Liege, Belgium.—This invention refers to an improved system of breech-loading needle firearms, the peculiar distinctive features of which are: 1st. The manner of opening and closing the breech for the insertion of the cartridge, and the drawing off of the same. 2d. The adaptation of this arm to the use of either paper or pasteboard cartridge, or metallic central percussion ones. 3d. The employment, according to the use of either paper or metallic cartridges of either one of two cylinders; one of these cylinders serving only, for instance, to fire paper cartridges, while the other serves to fire the ones the shells of which are entirely metallic. A fourth feature consists in fitting to this system of arm a safety trigger, whereby are prevented accidents whenever the arms are loaded and maneuvered.

PACKING NEEDLE.—Wm. H. Marriott, Baltimore, Md.—This invention relates to a new and useful improvement in needles for sewing canvas, and other heavy and thick material, which needles are known as "packing needles" and the invention consists in forming a cutting edge in the eye of the needle for cutting the thread when desired.

PLANNER AND SCRAPER.—Wm. Dutton, Boston, Mass.—This invention relates to new and useful improvement in tools, used for scraping and planing boxes or barrels, for marking, or for removing marks from boxes or barrels, and for other purposes.

GLOBE VALVES.—H. H. Hendrick, Dayton, Ohio.—This invention relates to a new and useful improvement in globe valves, whereby they are made more useful and durable than they have hitherto been.

HEAT-RETAINING PAIL.—John C. Brain, Brooklyn, N. Y.—This invention relates to a new and useful improvement in vessels to be used as non-conductors of heat, whereby the heat imparted to the contents of such vessels may be retained.

VENTILATOR.—John Lesperance, St. Louis, Mo.—This invention relates to improvements in ventilating apparatus for houses, cars, etc., whereby it is designed to provide a purified and regulated flow of air, by the employment of a filtering apparatus to be placed in the window opening through which the air is caused to pass in entering the house, etc.

HAME FASTENING.—J. V. Hutschler, Keyport, N. J.—This invention relates to improvements in devices for fastening hames of harness, the object of which is to provide a metallic fastening of cheaper and more durable construction and more convenient to operate than the leather straps or buckles now commonly employed.

MACHINE FOR MAKING PLUGS OF TOBACCO.—Peter M. Guerrant and Peter M. Rowlett, New Concord, Ky.—This invention consists in the arrangement upon a table of a trimming bed, a portion of which is movable, in combination with trimming cutters, whereon the leaves or strips are laid in suitable thickness to form the sheets, and trimmed to the proper shape, from which they are moved on the said movable portion of the bed to a press to be pressed into sheets; also, in an arrangement of sliding table and rotating cutters, for cutting the said sheets into plugs.

SASH FASTENER.—T. O. Wilson, Fisherville, N. H.—This invention relates to improvements in sash stops, the object of which is to provide a simple arrangement of spring bolt for working the sash in any position, all the parts being arranged and attached to a plate which may be readily attached to any window with but little labor.

ROTARY HARROW.—Samuel Lubolt and Jacob Trout, Lykens, Pa.—This invention relates to that class of double rotary harrows in which two horizontal harrows are caused to rotate by means of a vertical wheel between them, and has for its object an improvement of the construction of such harrow so as to render the whole instrument lighter, neater in appearance, and cheaper in construction, than as it has heretofore been made, while operating in the field to better advantage.

BEEHIVE.—R. P. Buttles, Mansfield, Pa.—This invention relates to a new and useful improvement in the construction of beehives whereby perfect ventilation is obtained, simplicity in construction, and suitable guides provided for the building of the combs.

THRESHING MACHINE.—Matthias Fuos, Castroville, Texas.—This invention relates to a new and improved machine for threshing grain, and it consists in a novel construction of the same.

BAKING DISH.—H. C. Wilcox, West Meriden, Conn.—This invention relates to a new article of manufacture for baking puddings, pies, and other similar dishes, and consists in employing an iron enameled dish in combination with an outer plated containing vessel or casing.

FIREARM.—S. G. Bayes, Wauseon, Ohio.—This invention relates to a new and useful improvement in that class of firearms which are known as "magazine" guns.

MANUFACTURE OF BOOTS AND SHOES.—S. C. Phinney, Stoughton, Mass.—This invention relates to an improvement in the method of cutting leather in the manufacture of boots and shoes.

CULTIVATOR AND SEED PLANTER.—D. B. Morgan, Washington, Ohio.—This invention relates to a new and improved cultivator and seed planter, and consists in a novel construction and arrangement of parts.

CARRIAGE WHEEL.—Dr. W. S. Mayo, New York city.—This invention relates to a new and useful device for aiding and facilitating the crossing of railroad tracks by carriages and other wheeled vehicles, and consists in forming a series of shoulders and inclined planes on the edges or corners of the wheel by notching or craning the same, so that the wheel, when brought in contact with the rail at any angle other than a right angle, will take hold or bite the rail, and thereby allow the wheel to mount and pass over the rail.

BOTTLE FILLER AND CORKER.—T. W. Cowey, Cannonsburg, Pa.—This invention consists, in the first place, in adapting to a vessel for receiving liquids from the barrel preparatory to the bottling coking processes, an automatic device for regulating the quantity to be drawn off.

SAFETY STOVE FOR RAILROAD CARS.—Arnold A. Wheelock, Washington D. C.—The object of this invention is to construct a stove for railway cars of such a character, that, if accidentally overturned from any cause, the coals, ashes, etc., will not escape, but the fire will be instantly extinguished.

VELOCIPÈDE.—A. D. Thompson and J. Madden, Jr., Baltimore, Md.—The object of this invention is to improve the construction of three-wheeled velocipèdes, that their speed and the power necessary to move them can be adjusted and changed without changing the movement of the pedals, and that they can be operated either by foot or by hand, or by both together. In attaining these ends the general construction of the vehicle has been so changed and improved that several other important advantages result therefrom.

CORN PLANTER.—Jacob R. Randall, Camargo, Ill.—By this invention the corn planter is so improved in construction that it can be turned more easily, and the action of its plows, seeding apparatus, etc., can be more readily and conveniently controlled than heretofore.

MATCH SPLINT CUTTER.—M. D. Murphy and O. C. Barber, Middlebury, Ohio.—The object of this invention is to produce a cutter which can be kept sharp more easily and perfectly than those hitherto used, and which will economize the material to better advantage. To this end the invention consists, first, in the form of the edge, and of the holes through which the splints are forced, and secondly, in the method of forming the said edge and holes in manufacturing the instrument.

SLEIGH AND SLED.—D. C. Frazier, Sidonsburg, Pa.—This invention is an improvement upon the device patented to D. C. Frazier, January 28, 1868, No. 73,885, and consists in a new apparatus for throwing the carriage upon its wheels or its runners, a new method of attaching the wheels to the runners, and a new construction of the axle and reach, whereby the vehicle can be more readily turned, whether on wheels or runners.

SEED SOWER.—M. F. South and T. J. Howe, Owatonna, Minn.—This invention relates to that class of seed sowers in which the seed is distributed by means of a series of grooved cylinders arranged upon a rotating shaft under the seed box, each working in a concave cap through which the seed is fed. This improvement consists in a novel construction and arrangement of the shaft, clutch, draft wheels, and axles, in connection with said cylinders and caps, and the lever for regulating the feed; whereby the construction of the machine is greatly simplified and its cost reduced, while it is rendered stronger and more durable than heretofore.

PREPARED PHOSPHATE.—O. A. Moses, Charleston, S. C.—This invention has for its object the production of an improved article of manufacture by extracting, by a new method, the most valuable fertilizing ingredients of the so-called South Carolina phosphates and marls, and of all other substances possessing characteristics analogous thereto, that is to say, containing the valuable phosphates of lime, magnesia, etc., intermingled with useless particles of said carbonate of lime, the oxides of iron, etc., etc.

AX HANDLE SHIELD.—Beauman Butler, St. Johnsbury Center, Vt.—This shield is composed of sheet iron, lap-brazed, one and one-half inches in length on top by three or more on bottom. It is driven firmly on to the helve and then inserted about one half inch into the eye of the axe; it prevents the helve from being bruised in splitting wood, also makes it much stronger in resisting side strains, rendering the helve (at the trifling cost of a dime) of equal value to two or three without it, a very small but excellent improvement. One of them adjusted to an axe can be seen at our office. Patented January 26, 1869.

Inventions Patented in England by Americans.

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

PROVISIONAL PROTECTION FOR SIX MONTHS.

2,800.—SECURING SOLES UPON SHOES, ETC.—B. D. Godfrey, Milford, Mass. September 11, 1868.

3,959.—EXTRACTING THE COLORING MATTER OF Madder Root.—A. Paraf, New York city. December 29, 1868.

2,979.—SPINNING MACHINE.—John Goulding, Worcester, Mass. December 13, 1868.

3,980.—MACHINERY FOR SEPARATING THE FIBERS OF HAIR ROPES.—Abner Mellen, John H. Wilcox, and Abner Mellen, Jr., New York city. December 31, 1868.

3,981.—REVOLVING BREECH-LOADING FIREARMS, AND CARTRIDGES AND CHARGING DEVICES.—Colt's Patent Firearms Manufacturing Company (incorporated), Hartford, Conn. December 31, 1868.

3,985.—WRENCHES.—Wm. Baxter, Newark, N. J. December 31, 1868.

3,986.—WASHING MACHINES.—H. E. Smith, New York city. December 31, 1868.

3,987.—REVOLVING FIREARMS, AND CARTRIDGES FOR FIREARMS.—E. H. Plant, A. P. Plant, and A. Hotchkiss, Southington, Conn. December 31, 1868.

16.—APPARATUS FOR SEWING IN THE OPERATION OF BOOK-BINDING.—H. G. Thompson, New York city. January 2, 1869.

18.—PROCESS OF REFINING IRON AND MAKING STEEL.—C. J. Caumon (also known as John Absterdam), New York city. January 4, 1869.

31.—SEWING MACHINES.—Greenleaf Stackpole, New York city. January 5, 1869.

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 correspondents 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 as advertisements at \$1.00 a line, under the head of "Business and Personal."

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

A. S. W. A., of Mo., asks "what power would be gained on an engine with a single slide valve having twice the capacity for exhaust as for inlet, the valve having one and a half inches throw, opening the inlet port half an inch, and the exhaust one and a half inches?" We cannot see in what respect this proposed valve differs from many single slide valves in common use. As to the "gain" of power there is none whatever; all engines should have abundant exhaust space or large exhaust ports.

J. O. S., of N. Y.—"If large drivers were best on freight engines why are they not used?" You know—or at least railroad men know—that for loads small drivers give the best results, while large wheels give speed, not power. The reason is apparent.

E. T. of Pa.—Your drawing and description is almost identical with others which have been devised for rotary engines and for other purposes. If you write to Pratt, Whitney, and Company, Hartford, Conn., you can procure an engraving of a much superior, because simpler, device used successfully as a pump and water motor, but never considered by the inventor, Mr. Stannard, one of the firm, as suitable for a steam engine; yet it is better than your plan. One great difficulty in the production of a good rotary engine is the excessive friction, and another the excessive amount of steam required. Overcome these, the annoyances and stumbling blocks of your predecessors, and then you may look for success.

W. W. P., of Mass.—Brass, either a rod or pipe, expands in length more than iron at the same temperature. Brass expands from 2° Fah. to 212° Fah. 1 in 536, and iron 1 in 546.

M. L. R., of Col., says that to prevent kerosene lamp explosions the holes in the net or screen under the chimney should be made as large as possible to admit more air. This may be done by reaming them out with a hand reamer. The amount of oxygen admitted to the flame he thinks is usually too small.

E. S. N., of Mich.—In Vol. XII, page 151, we published an article on the "Pressure of a slide valve," to which we refer you as a reply to your interrogatory. As you are an "old subscriber," undoubtedly you have the volume.

J. P., of Pa.—One of our correspondents writes that the best hardening pickle he ever used was spring water made into a brine strong enough to float an egg, then boiled to precipitate the lime and allowed to cool.

J. C. M., of Ohio.—The following are the most amusing and easily prepared sympathetic inks: Yellow—Sulphate of copper and sal ammoniac equal parts dissolved in water. 2d. Onion juice. Both colorless when first applied, but visible when heated. Black—A weak infusion of galls, show upon application of a weak solution of proto-sulphate of iron. 2d. A weak solution of proto-sulphate of iron; gives a blue when moistened with a weak solution of prussiate of potash; black, when moistened with infusion of galls. Brown or yellow—Very weak solutions of nitric acid, sulphuric acid, muriatic acid, common salt, or nitrate of potash. Shows when heated. Green—Solution of nitro-muriate of cobalt, appears when heated and disappears again on cooling. Rose-red—Acetate of cobalt solution with the addition of a small quantity of nitrate of potash, appears and disappears alternately on heating and cooling. Solutions of nitrate of silver and terchloride of gold, become permanently dark on exposure to sunlight.

Official List of Patents.

Issued by the United States Patent Office.

FOR THE WEEK ENDING FEBRUARY 9, 1869.

Reported Officially for the Scientific American.

Table with 2 columns: Fee description and Amount. Includes SCHEDULE OF PATENT OFFICE FEES: On filing each caveat \$10, On filing each application for a Patent (seventeen years) \$15, On issuing each original Patent \$20, etc.

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

Patents and Patent Claims.—The number of patents issued weekly having become so great, with a probability of a continual increase, has decided us to publish, in future, other and more interesting matter in place of the Claims. The Claims have occupied from three to four pages a week, and are believed to be of interest to only a comparative few of our readers. The publication of the names of patentees, and title of their inventions, will be continued; and, also, as heretofore, a brief description of the most important inventions. We have made such arrangements that we are not only prepared to furnish copies of Claims, but full Specifications at the annexed prices:

For copy of Claim of any Patent issued within 30 years.....\$1
A sketch from the model or drawing, relating to such portion of a machine as the Claim covers, from.....\$1
upward, but usually at the price above named.

The full Specification of any patent issued since Nov. 20, 1866, at which time the Patent Office commenced printing them.....\$1.25

Official Copies of Drawings of any patent issued since 1836, we can supply at a reasonable cost, the price depending upon the amount of labor involved and the number of views.

Full information, as to price of drawings, in each case, may be had by addressing MUNN & CO., Patent Solicitors, No. 37 Park Row, New York.

86,623.—CUTTING STONE.—John R. Abbe, Providence, R. I.

86,624.—RAILWAY SIGNAL.—Jas. D. Akley, Mifflin, and F. P. Coggeshall, Patterson, Pa.

86,625.—DRYER.—Charles E. Ashcroft, Boston, Mass.

86,626.—CAN OPENER.—Richard H. Atwell, Baltimore, Md.