

larger than the Brooklyn caisson. Owing to the greater depth to which it is necessary to go, and the greater pressure of air to be encountered, it will be lined with boiler plate inside, otherwise it is constructed of wood.

Other means besides the water shaft will be provided for the removal of the fine quicksand. Successful experiments to that effect have been made by Mr. Allen and Mr. Collingwood, during the summer. The depth of water varying from thirty-five to forty feet, at the site of that pier, the management of the caisson during its descent will be somewhat different, and a slight change in the frames and floor will be made.

To Mr. C. C. Martin, formerly chief engineer of Prospect Park, and now engineer of construction on the caisson, as well as to Col. Paine in superintending the building of the caisson and the excavation inside, I am under continued obligations. Also to Mr. Collingwood, in charge of the designing room, and to Messrs. Van der Bosch and Hildenbrand, draftsmen.

Respectfully submitted, W. A. ROEBLING, Chief Eng. N. Y. Bridge Co.

CONTRACTS.

We learn from Mr. Kingsley's report all of the work thus far which could well be done by contract has been let—after advertising for proposals—to the lowest responsible bidder.

The following are the principal contracts awarded.

The contract for making the caisson was awarded to Messrs. Webb & Bell, shipbuilders, of Green Point, L. I., and they have received for its construction one hundred thousand, two hundred and seventy-four dollars and fifty-one cents (\$100,274.51). This contract was awarded on the 30th day of October, 1869, and the work was prosecuted with such energy, and with such fidelity to the plans furnished as entitle them to very great credit. A contract was entered into with Messrs. Mayhew & Co. for 1,800,000 feet, board measure, of yellow pine timber, at thirty-two dollars per thousand. This contract was promptly filled, and the timber was of superior quality.

On October 29, 1869, a contract was made with Messrs. Wilder, Son, & Co. for 1,800,000 feet, board measure, of yellow pine timber, at thirty-one dollars and fifty cents per thousand. This was delivered in time for the caisson, and was in all respects satisfactory.

On November 10th, 1869, a contract was made with Messrs. Hubbard & Whitaker, of Brooklyn, for the construction of the air, water, and supply shafts, shoes, shoe plates, etc., for the caisson, they being the lowest bidders.

On January 22, 1870, a contract was made with Messrs. Morris & Cummings, of New York, to furnish, and put in position complete, and ready for use, two of their machines for dredging, including the engines, hoisting gear, and buckets, for the sum of \$9,000. These are in position and nearly ready for use.

On March 21, 1870, a contract was made with Messrs. Noon & Madden, of Kingston, N. Y., to furnish 5,000 cubic yards of limestone for the foundation of the Brooklyn tower of the bridge. The delivery of the stone has been promptly commenced, and the indications are that it will be supplied as fast as required for the work.

On April 11, 1870, a contract was entered into with Messrs. W. Taylor & Son, of Brooklyn, to furnish two engines for hoisting stone from the scows to the tower, for the sum of \$2,250 each. The time for the delivery of these has not yet expired, but the work on them is well advanced.

NOTE.—The laying of the stone upon the top of the caisson was commenced the 15th of June, the day the above report was made public. One of the dredges spoken of in the report commenced working on Wednesday, the 22d. The caisson ceased rising with the tide on Saturday, the 18th, the tide being low, and a considerable weight of stone having been placed upon the structure. It is now thought that the weight will be added as fast, or faster than the tide increases, so that the caisson has probably risen for the last time.—[EDS.]

ICE PITCHER CASE.—IN THE U. S. CIRCUIT COURT, EASTERN DISTRICT OF PENNSYLVANIA.

Colburn, Executrix of James Stimpson, vs. George B. Garrett & Co.—This was an action brought by the administratrix of James Stimpson to restrain the defendants from manufacturing and selling ice pitchers.

The claims of the patent are:

1. A pitcher for preserving ice water cool, combined with double walls inclosing between them air or equivalent non-conducting material, so arranged as not to impair the porosity of the pitcher, and its capability of discharging its contents by pouring, nor its capacity for holding water.

2. In combination with a double-wall ice pitcher, a nose, lip, or spout, through which the water is discharged, and a movable cover across the discharge-way, which prevents access of air into the pitcher thereat except during the act of pouring.

The defendants, Garrett & Co., manufactured and sold ice pitchers having both the features claimed, except that the cover over the spout was hinged so as to hang vertically. They denied the validity of the patent, and relied mainly upon old teapots and coffee-pots manufactured by Isaac S. Williams, of Philadelphia, forty years ago, having, as it was alleged, double walls; also upon an old teapot which has been in the family of Mrs. Fine, in Philadelphia, for many years, having double walls.

The court decided that the teapots referred to as the "Fine" teapot and the "Williams" teapot are not the same invention as the ice pitcher of James Stimpson, and that the first and second claims of the plaintiff's related patent are valid, and that the defendants have infringed the same, and that a decree be entered for plaintiff with costs, and that the case be referred to John Cadwalader, Jr., Esq., as master.

Harding for plaintiff; Diedrick for defendant.

NEW BOOKS AND PUBLICATIONS.

LIFE AT HOME; or the Family and its Members. Including Husbands and Wives, Parents, Children, Brothers, Sisters, Employers and Employed, the Altar in the House, etc. By Rev. William Aikman, D.D. 1 vol., 12mo. Nearly 300 pp., tinted paper, muslin, beveled boards. Price, plain, \$1.50; extra gilt, \$2.00. S. R. Wells, publisher, 389 Broadway, New York.

This is a very excellent and timely book, one that should be read by parents and children alike. The counsel is wholesome—the criticisms none too severe.

LIPPINCOTT'S MAGAZINE, for July,

contains an article from the pen of Justin McCarthy on "The Petticoat in the Politics of England," which contains much to instruct and something to amuse. A paper on "The Hypothesis of Evolution, Physical and Metaphysical," by Edward D. Cope, states arguments and facts in support of this doctrine, and at the same time suggests some "consequent necessary modification of our metaphysical and theological views" resulting from its acceptance. "A Week among the Mormons" adds but little to our knowledge of Young and his followers, but will interest readers who are not tired of the subject. "Negro Superstitions," by Thaddeus Norris, is a very readable and entertaining article. The usual amount of lighter reading is supplied, and is of good quality.

THE ATLANTIC MONTHLY, for July,

opens with a poem by Longfellow, "The Alarm Bell of Atri," which will be read with delight by all lovers of poetry. "Equal, yet Divine," by Burt G. Wilder, touches upon that absorbing question of the time the future status of woman in society. "Criminal Law at Home and Abroad," by Francis Wharton, and "The Shipping of the United States," together with Mr. Burt's contribution, are the solid dishes of the feast. The usual side dishes and dessert are added.

Inventions Patented in England by Americans.

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

PROVISIONAL PROTECTION FOR SIX MONTHS.

1,429.—AUTOMATIC BARREL-FILLING APPARATUS.—S. C. Cadlin, Cleveland, Ohio. May 18, 1870.

1,454.—ROLLING METALLIC RODS OR WIRE.—J. P. Blake, Medway, Mass. May 19, 1870.

1,487.—MACHINERY FOR GRINDING HAND SAWS.—W. F. Semple, Mount Vernon, Ohio. May 23, 1870.

1,490.—TREATING LEATHER.—Ed. Fitzhenry, Boston, Mass. May 23, 1870.

1,500.—EARTH CLOSETS, ETC.—C. A. Wakefield, Pittsfield, Mass. May 4, 1870.

1,508.—MAKING METAL COP TUBES.—James Eaton, Boston, Mass. May 24, 1870.

1,508.—CONNECTIONS FOR FIRE ENGINE HOSES, ETC.—Loftus Perkins, London, England, and M. Gibb, Washington, D. C. May 24, 1870.

1,512.—WASHING MACHINE.—J. T. Owen Philadelphia, Pa. May 25, 1870.

MACHINERY FOR FORMING BATS OF WOOL FOR FELTING PURPOSES.—L. Robinson, Matteawan, N. Y. May 25, 1870.

A number of Moore's Rural New Yorker (the Great National Illustrated Rural, Literary, and Family Newspaper,) will be sent free to every reader of the Scientific American, who sends address to D. D. T. MOORE, 41 Park Row, New York.

Business and Personal.

The Charge for Insertion under this heading is One Dollar a Line. If the Notices exceed Four Lines, One Dollar and a Half per line will be charged.

The paper that meets the eye of manufacturers throughout the United States—Boston Bulletin, \$4.00 a year. Advertisements 17c. a line.

Pictures for the Parlor—Prang's latest Chromos, Hart's Seasons. Sold in all Art Stores throughout the world.

Wm. Roberts & Co., Designers and Engravers on Wood, 36 Beekman st., New York, would respectfully announce that they are now prepared to receive orders from Manufacturers, and others, for engraving of machinery, views of stores, factories, trade marks, etc., etc.

Wanted.—A man of thorough knowledge or practical experience in casting white metal, buffing, burnishing, and silver plating, to go West. Address, with references, P. O. Box 5302, New York city.

For sale at a Bargain—10-Horse Boiler—a good one. For particulars, address A. H. Walker, Oswego Center, N. Y.

Carpenter Planes, the best quality, made by Tucker & Appleton, Boston. Send for list.

Of Washing Machines, there is nothing to be compared with Doty's.—Weekly Tribune, Dec. 15, 1869.

For Sale—The Right for the six New England States of L. Bertsche's self-fastening caster, the best caster ever used. Address L. Bertsche, 8th Ward, Allegheny City, Pa.

Scientific American.—Back Nos., Vols., and Sets for sale. Address Theo. Tusch, City Agent, Sci. Am., 37 Park Row, New York.

A Superintendent wanted in a large wood-working and machine shop, in the State of New York. Address, in own handwriting, stating references, past experience, salary expected, etc. An interest in the business will be offered to the right person, if it is desired. Address "Superintendent," P. O. Box 778, New York city. The Editor of this paper will vouch for the responsible character of the establishment needing the above service.

Wanted—A good second-hand Stationary Engine, from 12 to 15-H. P., built within the past two years. Send full description, with name of maker and lowest price. Address P. O. Box 159, Bridgeport, Conn.

The "Patent Steam Gong," in use for Fire Alarms, Fog Signals on steamboats, factories, etc. Have a musical tone, and have been heard thirty miles. Manufactured by the Union Water Meter Co., Worcester, Mass.

West's Great American Tire-Setting Machine sets tire without removal from the wheel, saving ninety per cent over the old method. West & Fish, Geneseo, N. Y.

To Brick Makers.—A new style of Brick, for Paving Sidewalks, just patented. Warranted to lie solid and never to rock when trod upon. Rights for sale cheap by the inventors, Moffat & Thomson, 121 Otter st., Philadelphia, Pa.

Wanted.—Situation as Superintendent or foreman in Machine Works. Fifteen years' experience. Address P. O. Box 1016, Worcester, Mass.

Wanted.—A good second-hand Roper 4-horse Engine. Address, with price, Wm. J. Mack, East Norwich, L. I.

Wanted.—A good Patent Salesman. Box 115, Cuba, N. Y.

The best boiler-tube cleaner is Morse's. See cut inside page.

Crampton's Imperial Laundry Soap, washes in hard or salt water, removes paint, tar, and grease spots, and containing a large percentage of vegetable oil, is as agreeable as Castile soap for washing hands. "Grocers keep it." Office 31 Front st., New York.

Peck's patent drop press. For circulars, address the sole manufacturers, Milo Peck & Co., New Haven, Ct.

Millstone Dressing Diamond Machine—Simple, effective, durable. For description of the above see Scientific American, Nov. 27th, 1869. Also, Glazier's Diamonds. John Dickinson, 64 Nassau st., N. Y.

Direct-acting Steam Circular Saw Mill—Mill and engine combined in one machine. The power of the engine applied directly to the saw without belts. They are now in successful operation. Patent applied for. E. H. Bellows, Worcester, Mass.

For foot-power engine lathes address Bradner & Co., Newark, N. J.

Machinists and others using Fine Tools, send for illustrated catalogue. Goodnow & Wightman, 28 Cornhill, Boston.

Tempered Steel Spiral Springs for machinists and manufacturers. John Chatillon, 91 and 93 Cliff st., New York.

One 60-Horse Locomotive Boiler, used 5 mos., \$1,200. Machinery from two 500-ton propellers, and two Martin boilers very low. Wm. D. Andrews & Bro., 414 Water st., New York.

Kidder's Pastilles.—A sure relief for Asthma. Price 40 cents by mail. Stowell & Co., Charlestown, Mass.

Pat. paper for buildings, inside & out, C. J. Fay, Camden, N. J.

For solid wrought-iron beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

Keuffel & Esser, 71 Nassau st., N. Y., the best place to get 1st-class Drawing Materials, Swiss Instruments, and Rubber Triangles and Curves.

For tinners' tools, presses, etc., apply to Mays & Bliss, Plymouth, st., near Adams st., Brooklyn, N. Y.

Glynn's Anti-Incrustator for Steam Boiler—The only reliable preventative. No foaming, and does not attack metals of boiler. Liberal terms to Agents. C. D. Fredricks, 587 Broadway, New York.

To ascertain where there will be a demand for new machinery or manufacturers' supplies read Boston Commercial Bulletin's manufacturing news of the United States. Terms \$4.00 a year.

Cold Rolled—Shafting, piston rods, pump rods, Collins pat. double compression couplings, manufactured by Jones & Laughlins, Pittsburgh, Pa.

For mining, wrecking, pumping, drainage, and irrigating machinery, see advertisement of Andrews' Patents in another column.

Winans' boiler powder, 11 Wall st., N. Y., removes Incrustations without injury or foaming 12 years in use. Beware of Imitations.

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.

J. H. P., of Ark., asks, will a 100-pound weight drive light machinery, sewing machines, etc. We answer that a 100-lb weight falling through a sufficient space in a given time would drive the Great Eastern, were the power thus developed applied to the propulsion of that monster. This correspondent is evidently laboring under a very common misapprehension; the confounding of statical pressure with mechanical power. Statical pressure is not mechanical power. It never did and never will do work in the sense in which the term work is used in mechanics. It takes on an average about one tenth of a horse power to drive a sewing machine. To yield this power a 100-pound weight would need to fall through a space of three and three tenths feet in one minute of time, and continue moving at that rate.

J. H. P., of N. Y.—This correspondent writes in regard to the use of hellebore to kill currant worms. He says the white hellebore is as good as the black. This weed is also known as poke, or itch weed. It is not so expensive as the other. He makes a strong decoction of the leaves and stems, pours off the liquor, and applies it cold, with a watering pot. He says that a single application made at the night time, that is, when the eggs are all hatched, will be effectual in destroying the worms. He asks for something to kill maggots which destroy onions. Can any of our correspondents inform him?

W. & B., of Tenn.—Petroleum products, such as gasoline, are tested for their specific gravity by an instrument called an hydrometer. The lighter the fluid the deeper this instrument will sink into it. Gasoline or benzine spoken of as being 85° allows the instrument to sink to that number marked upon the stem.

M. H. S., of N. Y.—We cannot at this distance say what makes the bearings you describe heat; there are many things that might do it. The belts may be too tight, the bearing surfaces too small for the weight they support, or the lubricator used may be of a kind which evaporates as soon as the bearings become warm. We think it likely that the bearing surfaces are too small.

J. K., of Pa.—We should regard a scale of three eighths of an inch in thickness as dangerous in any steam boiler. To drive any engine at greater speed while performing an increased amount of work will require more steam, and consequently more fuel. Your question cannot be answered more definitely without more complete data.

S. K., of Mo.—Your solution of the 2d mechanical problem given out some weeks since is correct; it was also given by another correspondent. See article entitled "New Mechanical Movements" in last issue.

L. R. P., of N. H.—There are various methods of making solid emery wheels, mostly patented, and therefore not available to you except by purchase. We cannot describe any of them in this column.

J. G. S., of Vt.—What is meant by the pitch of saw teeth is the inclination of the face of the tooth up which the shaving ascends, and not the intervals from tooth to tooth as in wheels.

N. F. E., of Vt., wants a size that will cause bronze to adhere to paper, linen, etc., and which will not stain or color. Do any of our correspondents know what will do the business?

J. W., of L. I.—The plan of compressing air into receptacles to be afterwards used as motive power is old. It has many elements of impracticability which we cannot specify here.

T. A., of Mass.—Medals when dipped into the "bronze dips" described on page 285, are to be subsequently washed in water, and brushed. That is the whole of the process.

C. G., of Ohio.—Carbolic acid in weak solution is recommended as a preservative of awnings from mildew. Chloride of zinc has also been used.

A. A. E., of Mich.—A cement called marine glue is kept for sale pretty generally in drug stores, which unites wood and resists moisture.

G. E. R., of Mass., wants to know what will exterminate black ants from beams and flooring which they have bored into.

D. L. B., of Pa.—We published a rule for the computation of the sizes of cone pulleys on page 157, last volume.

W. W. W., of Ohio.—The expression "groin arch" is a misnomer; "groined arch" would be a correct term.

S. M. C., of Ohio.—The true length of the old measure called a digit is three fourths of an inch.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

MACHINE FOR BORING POSTS AND POINTING RAILS.—Rudolph Martin and Matthew Harner, Taneytown, Maryland.—This invention has for its object to bore fence posts in order to the making of mortises therein, and to sharpen fence rails in order to the insertion of their pointed ends in such mortises.

STREET AND STATION INDICATOR FOR RAILWAY CARS.—Edward L. Dean Newburgh, Ohio.—This invention has for its object to cause the index finger of a dial plate affixed to the inside of a street car to travel over its surface and point out the names of streets and stations as they are successively reached.

SADDLE.—George Horter, New Orleans, La.—The object had in view in making this invention was the production of a very cheap, and, at the same time, a very durable saddle, mainly for use in districts like the Southern and South-western parts of the United States where horse-back riding is the chief means of locomotion, and where most of the inhabitants are very poor.

WATER WHEEL ATTACHMENT.—W. A. Cobb, Orange, Mass.—This invention has for its object to prevent water wheels from being stopped by the "back water" of floods. To this end the invention consists in providing a casing extending from the floor of the flume on which the wheel rests to the bed of the river, which casing receives the water flowing from the wheels through the floor of the flume, and discharges it through one of two pipes, a short one for ordinary use and a very long one for flood seasons, which discharges at a point not affected by the high water of the stream, and consequently renders the casing and flume impervious to the surrounding water, the gate to the short pipe being, in the mean time closed.

HONEY-BEE PALACE.—Nathaniel F. White, Mount Pleasant, Iowa.—This invention relates to a new and useful improvement in a house or palace for honey bees, in which their hives are placed and where they are protected from moths and from the weather.

FRUIT DRYER.—Newton C. Cooley, Wyoming, Del.—The invention consists in a fruit-drying case, provided with partitions that divide it into separate chambers which communicate at one end with a hot-air flue, and at the other end with an escape passage leading to a chimney, and which are furnished with screens for holding fruit, malt, hops, or other article to be dried in the current of hot air that sweeps through the chambers, the moisture drawn from the fruit in each chamber being carried off therefrom directly to the chimney without rising through the other chambers and damaging the fruit therein.

FRUIT JAR.—Thomas P. Gibbons, Philadelphia, Pa.—This invention consists in a metallic collar provided with an inwardly projecting flange at its lower end, in combination with an outwardly-projecting flange on the head of a fruit jar, in such manner that, by the two flanges, the collar is prevented from being removed from the jar, while there is no obstruction to slipping the collar down on the neck of the jar for convenience in filling.

PADLOCK.—Edward L. Gaylord, Terryville, Conn.—This invention consists in an inclosing case for a padlock struck in two plates with a lap, or tongue and groove joint at their edges; also in a spring coiled in a recess in the butt of the shackle, and operating so as to automatically throw the shackle open when released from the tumblers, and hold it open until it is shut by direct pressure.

MUCILAGE OR INK STAND.—Franklin T. Grimes, Liberty, Mo.—This invention relates to that class of inkstands in which the space, if any, in the reservoir above the ink is a vacuum; and the invention also consists in partitions placed in the ink reservoir so as to divide the latter into separate compartments, in order that, if the vacuum be destroyed in one part of the reservoir by an irruption of air, it may still be preserved in the remaining portions.

RAKING ATTACHMENT FOR HARVESTERS.—William W. Miller, Zionsville, Ind.—This invention has for its object to furnish an improved raking attachment for harvesters, which shall be so constructed as to sweep the grain from the platform of the harvester by a slight movement of the driver's foot whenever a sufficient amount of grain has been cut to form a gavel, depositing the grain at the rear of the drive wheels so as to be entirely out of the way of the machine at its next passage.

FARM GATE.—Howard Piper, Haskins, Ohio.—This invention relates to improvements in that class of gates which are arranged to slide back and forth in opening and closing, and consists in arranging the post on which the gate slides, so that it may be raised up to admit of sliding the gate above the snow, or for other purposes. The invention also consists in a peculiar arrangement of the gate with the said post for sliding therein, and for arms for bracing the ends of the gate laterally.

HAY LOADER AND CARRIER.—Galen Meaders, Jeffersonville, Ind.—This invention relates to a new and useful improvement in a vehicle for gathering and transporting hay.

SEEDER AND CULTIVATOR.—J. T. Trowbridge, Akron, Ohio.—This invention has for its object to improve the construction of the seeder and cultivator, known as the "Champion of Iowa," so as to make it simpler in construction, stronger, more effective in operation, and more convenient in use.

ARTIFICIAL FUEL.—E. F. Loiseau and C. F. Requin, Nashville, Tenn.—This invention has for its object to practically utilize coal dust as fuel.

LUBRICATOR.—David Adamson, Bremen, Germany.—This invention relates to improvements in that class of lubricator cups, in which a piston is employed to receive steam pressure for forcing viscid or coagulating material out of the cup.

THREE-WHEELED CARRIAGES.—C. H. Barrows, Willimantic, Conn.—This invention has for its object to so construct the steering apparatus of three-wheeled carriages, that the vehicles can be more readily controlled, and less apt to be overturned than the ordinary carriages now in use.

DUST-PROOF VENTILATING WINDOWS.—M. C. Murphy, Boston, Mass.—This invention relates to improvements in ventilating windows, and consists in the employment, either with the ordinary plain glass windows or not, of two or more sashes with vertical, concave, or convex strips of glass or other substance, set in the upper and lower bars of the sash, with narrow spaces between the edges, and with the centers of the concave faces of the strips of the second set behind the spaces between the first, to cause the particles of dust carried in the air to strike against the concave surfaces and fall into discharge passages in the bottom of the window frame, and escape at the outside.

POWER APPARATUS.—Wm. Hammill, Parma, Mich.—This invention relates to improvements in machinery intended for generating power for driving light machinery, and has for its object to provide a simple arrangement of vibrating and swinging weights or pendulums and springs, which with the aid of an attendant for moving them past the "dead points," may be set into and kept in motion.

SLED BRAKE.—J. E. Contant, Rondout, N. Y.—This invention has for its object to furnish an improved brake for attachment to bob and other sleds, which shall be simple in construction, effective in operation, and conveniently operated, being worked by the action of the horses in holding back the sled.

GRAIN LIFTERS.—Wm. M. Jackson, Woodland, Cal.—This invention relates to improvements in grainlifters or elevating attachments to heading and reaping machines for straightening the lodged grain in advance of the cutters, and consists in an improved arrangement of means for elevating or depressing the lifting or elevating fingers or shoes moving in advance of the cutters, when applied to the heading machines. This invention also comprises an improved construction of the shoes, which move in advance of the cutters to support the elevating fingers.

REFRIGERATING ATTACHMENT TO WELLS.—J. L. Wiley, Vermont, Ill.—This invention relates to apparatus for use in connection with wells, for the reception and suspension immediately above the water of articles of food for preservation in warm weather, and it consists in the application along the walls of the well from the bottom to the top, and projecting a suitable distance above the top of the guide rails, and the application thereto of a crib capable of moving up and down, and of holding the articles to be preserved, and a winding crank, rope, and balance weight, for raising and lowering the crib.

GRAIN BINDERS.—Wm. B. Oglesby, Rridge Prairie, Ill.—This invention relates to improvements in grain binding attachments to reaping machines, and consists in one or more pairs of clamps mounted on a horizontally revolving support, and provided with a twisting device and a tucking device, and arranged to be held open for reception of the gavel by the weight of one of the jaws, which is closed up by a fixed bent rod, or cam, after reception of the gavel, and the twister and tucker are set in motion by toothed racks, gearing with pinions attached to them as they are moved past the said racks, twisting the band of straw previously placed in the clamps by hand, and securing it by tucking the end under, as in band binding, after which the over jaw falls open, and the bundles are ejected by a fixed rod, having one end arranged to stand in the path of the bundle when carried by the open jaw.

MERCURIAL EXPANSION ENGINE.—Charles G. Wilson, Brooklyn, N. Y.—This invention has for its object to furnish a simple, cheap, safe, and reliable motor, designed for use where any small power is required, and which shall be so constructed that it may be easily manipulated and kept in repair.

SAW SET.—Moritz T. Klahre, Bloody Run, Pa.—This invention has for its object to furnish an improved saw set by means of which a number of the teeth of the saw may be set upon both sides at the same operation, and which shall at the same time be simple in construction, effective in operation, and conveniently and quickly operated, and which may be easily adjusted to set the teeth more or less, or to set different sized teeth as may be required.

SULKY HARROW, CULTIVATOR, ROLLER, ETC.—James A. Casey, Maysville, Ky.—This invention has for its object to furnish an improved machine which shall be so constructed that it may be readily adjusted for use as a harrow, cultivator, or roller, doing its work well in either capacity.

WEANING BIT.—Isaac L. Baker, Prairie City, Kansas.—This invention relates to a new and useful device for weaning colts and calves, and for other purposes, and it consists in so forming a bit that air is admitted into the mouth in the act of sucking, thereby preventing a vacuum being formed, and consequently the flow of milk.

DOOR AND SHUTTER BOLT.—G. B. Green, Philadelphia, Pa.—The object of this invention is to provide a durable, safe, and ornamental bolt fastening for doors and shutters, and to be employed in all situations where it may be found useful; and it consists in the use of a slotted sliding bolt, and in plates of ornamental casting, or ornamental plates struck up or swaged of any form, or size, or design, which plates are attached to the studs which pass through the doors or shutters.

ANIMAL TRAP.—Samuel Arnold, Silver Springs, Tenn.—This invention relates to a new and useful improvement in traps for catching rats or other animals, birds, or fishes.

ADJUSTABLE SCHOOL DESK.—Charles H. Loomis, New Philadelphia, Ohio.—This invention relates to a new and useful improvement in desks or tables for school-rooms and other purposes, whereby they are made more convenient and useful than such articles have heretofore been, and it consists in making the top adjustable, so as to suit pupils of different ages, and so that the desk or table may be made to accommodate a person in an office, or elsewhere, while either standing or sitting.

APPARATUS FOR ROLLING AND COOLING BARRELS, CASKS, ETC.—David Cammerer, Cincinnati, Ohio.—This invention has for its object to construct an apparatus for agitating and cooling barrels and casks immediately after the inner sides of the same are covered with pitch, or other water-proof composition.

SPRING PACKING.—John Hughes, Saxton, Pa.—The object of this invention is to provide a spring packing for steam cylinder pistons, which shall be simple and durable, and readily adjustable to the walls of the cylinder.

CULTIVATOR.—Joseph Adams, Manteno, Ill.—This invention has for its object to furnish an improved cultivator, which shall be so constructed and arranged that the plows may be easily adjusted closer together or farther apart, and raised or lowered to regulate the depth at which they work in the ground.

GATE LATCH.—W. R. Goodrich, Whitestown, N. Y.—This invention has for its object to furnish an improved drop latch for gates, which shall be simple in construction, convenient in use, and effective in operation.

QUARTZ CRUSHER.—Jesse Quinsance, Bucyrus, Ohio.—This invention relates to improvements in quartz crushers, of that kind in which two or more rotary crushers are employed upon a circular bed.

PAPER FILE.—William Boyrer, New York city.—This invention relates to a new file for music, newspapers, etc., and has for its object to preserve the paper, and to allow the same to be opened flat at every place. The invention consists, first, in providing removable elastic cord holders to the ends of the covers, and, secondly, in the application to the said holders, of one continuous cord, to which a suitable number of separate papers may be attached.

MORTAR-MIXING MACHINE.—Seth Wetmore, Wellsboro, Pa.—The object of this invention is to construct a machine by which mortar, for building purposes, can be more completely mixed and tempered than by the ordinary manual process.

CLOTHESLINE HOLDER AND STRETCHER.—Nathaniel E. Buffington, North Providence, R. I.—The object of this invention is to provide an apparatus for properly holding clotheslines, so that the same will not be worn or chafed where they are bent to form angles, and also to permit their being properly stretched to take up the slack produced by use.

DOOR STRIPS.—Jerome M. Gray, Hamilton, N. Y.—The object of this invention is to provide simple, durable, and efficient means for preventing wind and water from entering dwellings, and other buildings, beneath and around outside doors, and it consists in the use of one or more thicknesses of felt, or cloth, or other pliable or elastic material, attached to the bottom or lower portion of the door, supported and held in place by means of an adjustable spring rod, and, in combination therewith, of one or more elastic rods or fillets, in the casing of the door, or in the door itself.

SAFETY CAPS FOR CANS.—Horace C. Alexander, New York city.—This invention has for its object to furnish an improved safety cap for cans, which shall be simple in construction, effective in operation, and convenient in use.

VIOLIN HOLDER.—Isaiah H. Arey, Boscawen, N. H.—This invention has for its object to furnish an improved violin holder, or chin rest, for violins, which shall be so constructed as to adapt it for holding the violin in proper position almost without effort, and which shall, at the same time, be simple in construction and easily attached to and detached from the instrument.

HORSE HAY FORK.—John S. Yinger, Manchester, Pa.—This invention has for its object to furnish an improved horse hay fork which shall be simple in construction, strong, durable, not liable to get out of order, and conveniently operated.

MACHINE FOR STRIPPING BLUE GRASS SEED.—Major Joseph W. Stivers, North Middletown, Ky.—This invention has for its object to furnish a simple convenient, and effective machine for stripping the seed from blue grass while standing in the field.

REAPER AND MOWER.—Jesse C. Miles, Bloomington, Wis.—This invention relates to improvements in reaping and mowing machines, and consists in improved attachments for guiding the cutter wheel, to hold the machine up to the standing grain, to cut the full breadth on sidehills; also, to prevent it from tipping over and to prevent side draft.

ROTARY PUMP.—William A. Allyn, Boston, Mass.—The object of this invention is to provide a machine for throwing a constant stream of water by means of an annular piston, operated by means of an eccentric on a central shaft.

ROTARY PUMP.—August Leuchtweiss, Cincinnati, Ohio.—This invention relates to a new rotary pump, which is constructed to throw a continuous stream, with great force, and without requiring great power. The invention consists in the combination of a paddle wheel with a rotary cut-off wheel and stationary packing for the same.

Official List of Patents.

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FOR THE WEEK ENDING June 21, 1870.

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104,398.—FOLDING DENTAL CHAIR.—C. J. M. Adams, Canton, Miss.
 104,399.—CULTIVATOR.—Joseph Adams, Manteno, Ill. Antedated June 11, 1870.

104,400.—LUBRICATOR.—David Adamson, Bremen, Germany.
 104,401.—POTATO DIGGER.—James Albaugh, Lyons, N. Y.
 104,402.—SAFETY CAP FOR CANS.—Horace Clifton Alexander, New York city.
 104,403.—ROTARY PUMP.—William A. Allyn, Boston, Mass.
 104,404.—AUGER BIT.—Albert L. Andrews, Bristol, Conn. Antedated Dec. 21, 1869.
 104,405.—VIOLIN HOLDER.—Isaiah H. Arey, Boscawen, N.H.
 104,406.—ANIMAL TRAP.—Samuel Arnold, Silver Springs, Tenn.
 104,407.—HARVESTER.—A. P. Ayres, Chicago, Ill.
 104,408.—WEANING BIT.—Isaac L. Baker, Prairie City, Kansas.
 104,409.—THREE-WHEELED CARRIAGE.—Chas. H. Barrows, Willimantic, Conn.
 104,410.—JIG SAW.—Thomas Blandin, Charlestown, Mass.
 104,411.—CAR STARTER.—Robert Bogardus, New York city.
 104,412.—SOLDERING IRON.—Jabez A. Bostwick, New York city.
 104,413.—NOZZLE AND SEALING CAP FOR SHEET-METAL CANS.—Jabez A. Bostwick, New York city.
 104,414.—APPARATUS FOR FILLING OIL CANS.—Jabez A. Bostwick, New York city.
 104,415.—PAPER FILE.—William Boyrer, New York city.
 104,416.—INSTRUMENT FOR GIVING FLUID MEDICINE TO ANIMALS.—Henry Adolph Brandes, Newark, N. J. (Francis H. I. Bosch executor).
 104,417.—TUNING PIN FOR PIANOS.—Julius M. Branig, New York city.
 104,418.—TREE PROTECTOR.—Sterne Brunson, Benton Harbor, Mich.
 104,419.—CLOTHES-LINE HOLDER AND STRETCHER.—N. E. Buffington, North Providence, assignor to himself, John Rich, and Lyander Flagg, Smithville, R. I.
 104,420.—DOOR KNOB.—G. W. Cady, Providence, R. I.
 104,421.—APPARATUS FOR AGITATING AND COOLING BARRELS AND CASKS DURING THE PROCESS OF PITCHING.—David Cammerer, Cincinnati, Ohio.
 104,422.—DEVICE FOR ROASTING AND BAKING.—John J. Carroll, Washington, D. C.
 104,423.—SULKY, HARROW, ETC.—James A. Casey, Maysville, Ky.
 104,424.—MACHINE FOR FELTING HATS.—Angelo Cattaneo (assignor to himself and He Lefort), Newark, N. J.
 104,425.—CABLE STOPPER.—E. R. Cheney, Boston, Mass., and John J. Emery, Owl's Head, Me.
 104,426.—PIPE TONGS.—E. B. Clark, Philadelphia, Pa.
 104,427.—ENCLOSED TAIL RACE FOR WATER WHEEL.—W. A. Cobb, Orange, Mass.
 104,428.—WATER WHEEL.—Alpheus C. Corpe, Stafford, Conn.
 104,429.—SLED BRAKE.—John E. Coutant, Rondout, N. Y.
 104,430.—NOZZLE AND CAP FOR OIL CANS.—E. T. Covell, Brooklyn, N. Y.
 104,431.—SOLDERING MACHINE.—E. T. Covell, Brooklyn, N. Y. Antedated June 6, 1870.
 104,432.—VIAL FOR FILTERING COLLOIDION.—D. H. Cross, Bennington, Vt.
 104,433.—METHOD OF COVERING WHIPS.—V. W. Crowsen (assignor to himself and Stephen Massey), Westfield, Mass.
 104,434.—MANUFACTURE OF WHITE LEAD.—James Cuddy, Pittsburgh, and G. S. Selden, Philadelphia, Pa.
 104,435.—FARM GATE.—John Dickson, Vevay, Ind.
 104,436.—GAGE KNIFE FOR CUTTING LEATHER.—C. T. Durham, James Wood, and Theodore Hall, Norristown, Pa.
 104,437.—VISE.—Jacob Edson, Boston, Mass.
 104,438.—MACHINE FOR CANNING FRUIT.—John H. Ellis, Peoria, Ill. Antedated June 11, 1870.
 104,439.—APPARATUS FOR TOWING CANAL BOATS.—A. H. Emery and Gabriel Leverich, New York city.
 104,440.—DIE FOR FORGING EARS FOR CARRIAGE SPRING HEADS.—John Evans, New Haven, Conn.
 104,441.—SHIELD FOR PADLOCKS.—C. C. Gale, Indianapolis, Ind.
 104,442.—MACHINE FOR FORMING EYELET STOCK.—Thomas Garrick, Providence, R. I.
 104,443.—MACHINE FOR FEEDING STOCK TO EYELET MACHINE.—Thomas Garrick, Providence, R. I.
 104,444.—HAND STAMP.—Jeremiah C. Gaston, Cincinnati, Ohio.
 104,445.—CARD CLOTHING.—Artemas W. Gates, New York city.
 104,446.—PREPARATION OF MINERAL BATH TO IMITATE MINERAL WATERS.—Otto Gavron, New York city.
 104,447.—LATCH FOR GATES.—W. R. Goodrich, Whitestown, N. Y.
 104,448.—WEATHER STRIP FOR DOORS.—J. M. Gray, Hamilton, N. Y.
 104,449.—BOLT FOR DOORS AND SHUTTERS.—G. B. Green, Philadelphia, Pa.
 104,450.—RAIN-WATER CONDUCTOR AND FILTER.—James C. Hall, Battle Creek, Mich.
 104,451.—MECHANICAL MOVEMENT.—Wm. Hammill, Parma, Mich.
 104,452.—MILKING STOOL.—Geo. W. Haviland, Fort Dodge, Iowa.
 104,453.—INSTRUMENT FOR REMOVING TWINE AND WIRE FROM BOTTLES.—John T. Haviland, San Francisco, Cal.
 104,454.—MACHINE FOR BOARDING LEATHER.—J. W. Hildreth, Boston, Mass.
 104,455.—SIDE SADDLE TREE.—William Hill, New York city.
 104,456.—SIDE SADDLE.—William Hill, New York city.
 104,457.—AUGER.—R. H. Hopkins, Hinsdale, N. H.
 104,458.—MITER MACHINE.—James R. Howell, Buffalo, N. Y.
 104,459.—PISTON PACKING.—John Hughes, Saxton, Pa.
 104,460.—GRAIN LIFTER AND HARVESTER.—W. M. Jackson, Woodland, Cal.
 104,461.—COOKING STOVE.—S. S. Jewett and F. H. Root, Buffalo, N. Y.
 104,462.—CAR COUPLING.—Wm. J. Johnson, New Orleans, La.
 104,463.—METALLIC BRACKET.—A. D. Judd, New Haven, Conn.
 104,464.—METALLIC BRACKET.—A. D. Judd and E. M. Judd, New Haven, Conn.
 104,465.—SPRING BOLT FOR WINDOWS.—Morton Judd, New Haven, Conn.
 104,466.—THERMOMETER.—John Kendall, New Lebanon, N. Y.
 104,467.—SAW SET.—Moritz Theodore Klahre, Bloody Run, Pa.
 104,468.—Suspended.
 104,469.—ROTARY PUMP.—August Leuchtweiss, Cincinnati, Ohio.
 104,470.—BLEACHING DARK SOAP AND "FOOTS."—Oscar Loew assignor to John M. Pendleton, New York city.
 104,471.—ARTIFICIAL FUEL.—E. F. Loiseau and C. F. Requin, Nashville, Tenn.
 104,472.—ADJUSTABLE SCHOOL DESK.—C. H. Loomis, New Philadelphia, Ohio.
 104,473.—HEAD REST.—Baxter Lyon and Charles M. Curtis, Springfield, Mass.
 104,474.—SHIPS' PORT.—C. E. Marshall, Chicago, Ill.
 104,475.—BREAST STRAP FASTENING FOR HARNESS.—J. H. Martin, Columbus, Ohio.
 104,476.—MACHINE FOR BORING POSTS AND POINTING RAILS.—Rudolph Martin and Matthew Harner, Taneytown, Md.
 104,477.—PAPER BOX MACHINE.—Charles A. Maxfield, New York city.
 104,478.—JOURNAL BEARING FOR CALENDAR ROLLS.—Wm. McAdams, Newton, Mass.
 104,479.—DEVICE FOR MOLDING AND CASTING PIPE.—John McClelland, Washington, D. C.
 104,480.—HAY GATHERER AND CARRIER.—Galen Meaders, Jeffersonville, Ind., assignors to himself and Rozel Weissinger, Louisville, Ky.
 104,481.—LAMP.—R. S. Merrill, Hyde Park, assignor to himself, W. B. Merrill, and Joshua Merrill, Boston, Mass.
 104,482.—HARVESTER.—Jesse C. Miles, Bloomington, Wis.
 104,483.—HARVESTER RAKE.—Wm. W. Miller, Zionsville, Ind.