OUR WASHINGTON CORRESPONDENCE

Rival Sewing Machines—Elias Howe's Extension

WASHINGTON, D. C., August 18, 1860.

MESSRS. EDITORS:—The application of Mr. Elias Howe, Jr., for an extension of his famous sewing machine patent is now before the Patent Office. All the papers relating to the case are now filed, and the question is engaging the attention of the Examiner who has charge of that class of inventions for an opinion. The extension naturally meets with much opposition, but the case is to be decided upon the submitted papers without oral argument. Walter Hunt's old machine, invented in 1843, and Howe's original model are now being examined. I have seen both, and have come to the conclusion that Howe's model is more perfect than has been represented. It is a practical sewing machine, having a curved vibrating needle, a shuttle and feed-motion. It contains all the elements of the successful sewing machines, and is very neat in its mechanical construction. It impressed me most favorably, although it is far from being as perfect as the sewing machines which are now manufactured. Hunt's machine is a very crude piece of mechanism, and is broken in several places. The parts remaining show that it had a vibrating needle, a feed-motion, and a shuttle for producing the lock-stitch; but the whole affair is so poorly constructed that it does not appear to have ever been practically operative. Hunt was a very ingenious but unfortunate man; in this case, however, he seems to have very nearly gained one of the brightest prizes ever won by an inventor. After the Examiner has fully examined and made a report on the application, the Commissioner of Patents will then give it a thorough investigation, and make the final decision; and, as he has the best means of examining both sides of the question, his decision will be looked-for with great anxiety.

As this is one of the most important extensions that has ever been applied for, I send the foregoing as public information in relation to its condition in the Patent Office. M.

[The letter of our correspondent clearly states the condition of Howe's extension case at the time when the letter was written. Since that date, we understand that the Examiner has reported the case to the Commissioner, and fully sustains the novelty of Howe's invention; but very properly leaving the question of remuneration to be decided by the Commissioner. Applications for the extension of patents under the law are presented and adjudicated upon certain rules made and provided for such cases. This case is no exception to the rule, and must be decided according to the evidence presented; the Commissioner being judge of both law and fact, and no *exparte* statements should have any weight in determining the issue. The position of the SCIENTIFIC AMERICAN is so well understood, in cases of this character, that we need not re-state it.—EDS.

HOLMES' RULE FOR SETTING STEAM BOILERS.

In accordance with the request of a correspondent, we republish from page 315, Vol. X. (old series), of the SCIENTIFIC AMERICAN the plan adopted by Joseph E Holmes, of Newark, Ohio, for setting steam boilers.

"Our boiler is 48 inches in diameter and 30 feet long, with two 17-inch flues. This boiler is set with four vertical bridge walls at about equal distances apart; the first is built within 4 inches of the boiler, the second 4½, the third 5. and the fourth 5½ inches. The heat passes under the boiler to the back end, thence forward through one of the flues, and back to a stack 34 inches square inside, and 85 feet high. This gives the heat a passage of 90 feet under and through the boiler. Our draft seems perfect, and it is one of the most controllable boilers I have ever seen."

THE PHILOSOPHY OF MUSIC.—On another page of the present number will be found a very profound disquisition on the "Mechanics and Mathematics of Musical Vibrations," written by Spencer B. Driggs, Esq., of this city, the inventor of many improvements in piano-fortes, one of which is known extensively as the "Drigg's attachment." We publish the article for the benefit of those of our readers who are interested in acoustics and the philosophy of music; it has excited the interest and extorted the approval of some of the most eminent among our professors of mathematics and natural philosophy, and will be found to evince great research.

LITERARY AND SCIENTIFIC NOTICES.

HISTORY, THEORY AND PRACTICE OF THE ELECTRIC TELEGRAPH.

This work is the first complete, reliable and accurate treatise on the science of telegraphy that has appeared from the American press. It is written by a practical man—George B. Prescott—who has had over 13 years' experience as an operator and manager of lines in this country, under the four great systems at present in use here. Most works heretofore published on this subject have been written by men possessing merely a *theoretical* knowledge of the art; and hence they have abounded in inaccuracies, some of which are of the most amusing character. No previous work contains a description of the Hughes and Combination systems, which are the most recent and improved, and have been widely introduced within the last three years. The work commences by explaining the general principles of electricity and of the telegraph, followed by a minute and clear description of all the different systems in practical use. Then the subject of subterranean and submarine lines is discussed, and a full account given of the laying and working of the Atlantic cable, together with every word that was transmitted through it, even to the private messages of the operators, which have been published in no other work. This is followed by an account of the progress and various applications of the telegraph; the construction of the lines, and their disturbances from atmospheric electricity; a chapter of miscellaneous information and amusing incidents connected with the art; and, finally, a summary of early discoveries in electro-dynamics and the application of galvanism. The work is handsomely "got-up," and richly illustrated; it will be found interesting and useful, as well to the general reader as the man-of-science and the practical telegrapher. We hope it will obtain the extensive sale which it deserves. The publishers are Ticknor & Fields, of Boston, Mass.

MEDICAL USES OF ELECTRICITY.

Ticknor & Fields, of Boston, Mass., have just published an octavo volume of 700 pages, by Alfred C. Garratt, M.D., Fellow of the Massachusetts Medical Society, on electro-physiology and electro-therapeutics, showing the best methods for the medical uses of electricity. The perusal of this work has produced the impression on us (which, perhaps, the author intended to produce) that electricity is a very powerful agent in the treatment of disease, and that it ought not to be practiced by any one who is not thoroughly familiar with its varied and peculiar effects. In some cases, the current requires to be passed in one direction; in others, in the opposite direction; pains and spasms are produced by sudden interruptions of the current—heat and blisters by its constant flow; and the various effects are very numerous. One of the simplest applications of electricity for curative purposes is its use in surgery, for heating a platinum wire red-hot, which is then employed as an actual cautery for burning parts which cannot be reached by a wire heated in any other way. As a specimen of the physiological effects of electricity, we extract the following account of an experiment performed by Humboldt, 70 years ago:—

"Alexander von Humboldt, in order to test accurately the physiological effects of *immediate* galvanism, says he caused a blister, of the size of a crown-dollar, to be placed on each of his own shoulders. They occupied the upper and outer portion of the deltoid muscles. When those two blisters were opened, he says, there trickled down his back the ordinary clear serum, which dried on the skin, showing nothing but a delicate gloss from the contained lymph, and which was readily washed off with simple water. The right blister was first experimented upon by placing over it, in immediate contact with the raw place, a small plate of silver that mostly covered this denuded blister; but there was neither felt nor seen any effect until the similar application of a plate of zinc over the other blister, and metallic contact was made between them; when, at each contact, there was a heavy, dull sensation of burning. This sensation, he says, sensibly increased from half-minute to half-minute. But what was the most surprising to all present, was the *appearance* of the now flowing secretion from the blisters; it was not transparent, nor was it bland, as before; but, in the course of a very short time, it had become reddish, producing evidence of irritation of the skin wherever it flowed over, leaving there reddish stripes. No angry wound could produce such acrid liquid, and quick-made excoriations. The gentleman who aided in these trials repeated the effects by reversing the arrangement of the silver to the left shoulder. In four minutes, violent inflammation set in, with increased local redness, together with the excoriations of purple and red stripes produced down the back by the moisture that flowed from under the metal plates that were thus on the raw surfaces. When the experiment was ended, says Humboldt, notwithstanding all the care taken to gently wash away the flowing moisture as well as could be, still did his back appear as a whipped criminal. This very remarkable experiment, for testing the physiological action of that method of using galvanism was given by Baron Humboldt, the Nestor of natural science, early in the year 1790, and even before the discovery of the voltaic pile; but after the discovery of the electro-muscular contractions, by Galvani, through the twitchings of dead frogs from metallic contact."

AMERICAN WATCHES.—In our issue of June 16th we took occasion to urge upon the attention of our readers the importance of establishing, upon an enduring basis in this country, the manufacture of watches. That article attracted a good deal of attention; on another page of the present issue we publish the challenge and letter of Mr. Reed, of Roxbury, Mass., which seem to smack of the right spirit. Mr. Reed has made the study of watches his business for many years, and we do not hesitate to say, from a careful examination of the specimen he has shown us, that the watches made under his patent by E. Howard & Co., of Boston, are of the very highest of workmanship, fully equal to those of the same class which are imported from abroad. We hope, within ten years at least, to see the importation of watches effectually stopped by the establishment of the business in this country. We shall thus save over $2,000,000, which now go to England and Switzerland for what can just as well be produced at home

VULCANIZING INDIA-RUBBER AND GUTTA-PERCHA.—A patent has been issued to I. L. Pitman, of London, for the following peculiar vulcanizing process. Preparations of india-rubber or gutta-percha and sulphur are immersed in a bath of metallic alloy at its fusing point, and they are thus far more quickly vulcanized than by steam or oven heat, according to the common methods. An alloy of 50 parts bismuth, 31 of lead, and 19 of tin, will fuse at 203° Fah., and into this articles which are to be vulcanized at a low temperature may be plunged, in an open iron vessel. An alloy bath that fuses at 203° Fah., may be used to immerse the article in first, for the purpose of driving of the moisture, then they may be lifted and plunged into a second bath containing more lead, and the fusing temperature of which may be 250° at which heat it may be continued for about two hours, when the article will be *cured*. In the vulcanization of fine soft goods, it is preferred to raise the heat of the bath to 225° during the first hour, then raise it gradually up to 275° taking altogether five hours to do this. Coarse goods may be vulcanized in two hours, by raising the metallic bath up to the temperature of 300°. This is certainly a true vulcanizing process.

RECENT AMERICAN INVENTIONS.

The following inventions are among the most useful improvements patented this week. For the claims to these inventions the reader is referred to the official list on another page:—

ELECTRO-MAGNETIC PRINTING TELEGRAPH.

The principal advantage of this invention is based upon the fact, that the same type wheel is employed for receiving and transmitting messages. This purpose is effected by the arrangement of cogs on the under side of the type wheel in combination with a corresponding series of movable stops, operated by keys, and with one stop on the lever that carries the armature in such a manner, that the motion of the type wheel is arrested either by depressing one of the keys, or by passing a current through the electro-magnet. A rapid rotary motion is imparted to the type wheel by means of a clock movement, or in any other desirable manner, and the type wheel is stopped at the desired letters by means of a series of stops passing through and guided by a stationary ring, said stops being operated keys and by the brought in contact with one stop at the under side of the rotary type wheel. By this arrangement the type wheel is allowed to move from one letter to the other without interruption. The motion of the type wheel is governed by an escapement of peculiar construction, which enables the operators of two stations to adjust the motion of their type wheels so that they correspond with each other without fail. The credit of this invention

belongs to E. F. Reynolds, of West Farms, N. Y., who obtained a patent for the same during the present week.

TEMPERING SAWS.

This invention relates to a new and improved means for tempering saws, that is to say, for lowering the temper from an extreme degree of hardness which is first given them, to a proper working temper. The object of the invention is to obtain a device which may be manipulated with facility, and at the same time so act upon the saw as to straighten them while reducing their temper. The invention consists in the employment of a stationary metallic bed placed over a suitable furnace, and used in connection with a suspended metallic pressure block, so operated as to have an oblique, or downward and forward pressure movement, whereby the desired end is obtained. The inventor of this improvement is William Clemson, of Middletown, N. Y.

FOLDING CHAIR.

The object of this invention is to obtain a chair which may be folded into a very small compass and still have a back capable of being inclined more or less at the option of the occupant. The invention is designed to facilitate and economize in the transportation of chairs, of the class alluded to, and to render the same more convenient and altogether more desirable in cases where they require to be frequently folded when not in use, for instance; when obtained for balconies, piazzas, &c., it being an object to have them fold as compactly as possible, so as to monopolize the least possible room. This invention was designed by James H. Swan, of this city.

BELT COUPLING.

This invention is an improved device for coupling together flat pulley belts, the object of the improvement is to make a self-coupling that may be applied to the belt, or detached from it in a very short time. It consists in the use of two rectangular frames suitably connected together at each end by jointed rods, and furnished with spikes and springs for preventing the ends of the belts from slipping from between the jaws of the frames when the belt is put under tension. This device has been patented to Charles Fairfax, Jr., of Cincinnati, Ohio.

CAR SPRING.

This invention has for its objeet the combining of india-rubber or other similar elastic substance with an air-chamber or bellows, either or both, in such a manner that the rubber or other elastic substance is used in connection with the atmospheric air so as to form a very efficient and durable spring for railroad cars, greatly enhancing the value of rubber springs which, heretofore, have had cheapness as their principal recommendation. This spring is the invention of G. L. Turner, of this city.

TANNING APPARATUS.

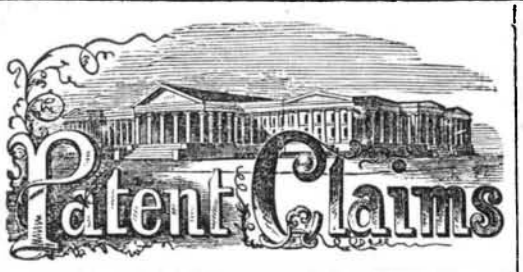
This invention consists principally in the employment of an air tank and air pump, with a suitable system of pipes and connections, in combination with the several tanks or vats employed in the process of tanning—such tanks or vats being made air-tight—which enables the liquors employed in the tanning process to be changed between the several tanks or vats, as far as necessary, by atmospheric pressure. It further consists in certain novel features in the details of the tanning process, whereby some important advantages are obtained. Dennis Aldrich, of St. Louis, Mo., is the inventor of this apparatus.

PROCESS OF DE-VULCANIZING IND -RUBBER.

This invention consists in subjecting the waste rubber to the combined action of a temperature of above 600° Fah., and steam without any considerable pressure, whereby the de-vulcanization is effected in a much shorter time, and more thoroughly than by any of the processes heretofore used. The patentee of this invention is A. C. Richard, of this city.

BURNISHING SPOONS.

This invention relates to a machine for burnishing the inner sides of the bowls of spoons, and consists in a novel means for graduating the pressure of the burnishers on the spoons, and also in a novel arrangement of parts for automatically feeding the burnishers over the work. The invention further consists in a means for presenting the burnishers to the work, and causing the same to act properly thereon. H. M. Jacobs, of Hartford, Conn., is the patentee, and his claims will be found on page 141 of our last number.



ISSUED FROM THE UNITED STATES PATENT OFFICE
FOR THE WEEK ENDING AUGUST 21, 1860.

[Reported Officially for the SCIENTIFIC AMERICAN.]

*** Pamphlets giving full particulars of the mode of applying for patents, size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

29,655.—S. T. Adams and David Adams, of Medina, Ohio, for an Improved Washing-Machine:

We claim the arrangement of the fluted spiral rollers, d, yielding concave bottom, D, springs, D', M and L, box, A, uprights, C, rubber suspension arms, F F, shaft, G, crank, H, slide boxes, I I, the whole being constructed and arranged for operation, conjointly, as and for the purpose set forth.

29,656.—Dennis Aldrich, of St. Louis, Mo., for an Improvement in Construction of Tanning Apparatus:

I claim, first, The combination in the manner shown and described of air-tank, X, with air-pump attached, air-pipes, E E, tan liquor tanks, L L, lime tanks, O, and bate tanks, N, so that the liquid may be changed or moved by atmospheric pressure, to and from each and every tank thus combined, all as set forth.

Second, Providing the leeches with inclined bottoms, in connection with false bottoms, which have their central portions perforated, when the said inclined portions extend upward from the said perforated portions toward the walls of the vats, as and for the purposes set forth.

Third, The combination with the frames, G G, of rockers, e e, attached to rockshaft, d, for the purpose of imparting a reciprocating motion to the frames, G G, substantially as described.

Fourth, The construction of the reels, F, with radial slotted partitions forming several compartments, and with a hinged door to each compartment, substantially as and for the purpose specified.

Fifth, The employment in the pipes, 6, of three-way cocks, 2, when applied so as to open communication at either the upper or lower part of said pipes, as described.

29,657.—Daniel Argerbright, of Gratis, Ohio, for an Improved Combined Chuck and Counter-sink:

I claim the circular piece, B, in combination with clamps, b b b b, knives, d d, adjusting screws, i i i i, and guide pins, a a a a, when the whole shall be constructed and operated substantially as and for the purpose set forth.

29,658.—Daniel Arndt, of Zanesville, Ohio, for an Improvement in Beehives:

I claim, first, The employment or use of sand-paper or ground glass, B, applied to the exterior of a beehive around its entrance, or within a hive, at suitable places, for the purpose specified,

Second, The water-tank, or reservoir, C, provided with necessary eduction and induction pipes, e g, placed within a hive, A, substantially as and for the purpose set forth.

[This invention consists, first, in the employment or use of sand-paper and ground glass, or angular sharp sand placed around the entrance to beehives as well as within the corners of the same, and at other places where the bee moth usually deposits its eggs or passes over, in order to repel the moth from the hive, or prevent its entrance into it, the moth having a great aversion to such substances. The invention consists, secondly, in the employment of a water tank placed within the hive, and provided with an eduction pipe and rose, for the purpose of ejecting, whendesired, the bees from the hive, and effect their removal to another.]

29,659.—J. B. Ash, of Elkton, Md., for an Improvement in Grubbing Machines:

I claim the combination and relative arrangement of hooks, A, slots, B, rollers, C, and hand levers, D, substantially as and for the purposes set forth.

29,660.—Edward Backus, of Rochester, N. Y., for an Improved Propeller for Canal Boats:

I claim the arrangement of the engines, D, frame C, wheel, D, and windlass, E, the whole constructed and operated substantially as and for the purposes specified.

29,661.—C. L. Barritt, of New York City, for an Improvement in Scythe-fasteners:

I claim the plate, b, as described, for adjusting and holding the shank of a scythe, by means of adjustable wood or other wedges, in combination with the cap plate, h, and ring and wedge, j and k, or their equivalents, when used for the purposes set forth.

29,662.—J. H. Beadle, of New York City, for an Improvement in the Construction of Breast Pumps:

I claim a breast-pump, having in combination the reciprocating barrel, D, tube, C, packing, c, and valves, b and e, constructed and operating substantially as and for the purpose specified.

[This invention consists in combining the pump barrel of a breast-pump with the glass tube leading from the cup in such a manner that said tube forms the piston-rod, and that by imparting a reciprocating motion to the barrel, the operation of pumping is effected.]

23,663.—Wm. Blake, of Boston, Mass., for an Improvement in Cleansing Galvanized Iron Pipes:

I claim my new process, substantially as specified, for effecting the removal of the surplus zinc from a galvanized or zinc-coated screw, the essential element of such process being the heating of the tube, or rod, and the putting it in revolution by means substantially as described, against a brush, or equivalent, for producing friction.

29,664.—Wm. Blake, of Boston, Mass., for an Improvement in Cleansing and Separating Galvanized Nails:

I claim my mode or process, substantially as described, of treating galvanized or zinc-coated nails, on their removal in mass from the coating bath or furnace, such process involving the use of gravitation (or a tube) on inclined plane, or slab, and a water bath, in manner as specified.

And I also claim the combination and arrangement of the tube, the inclined plane and the water bath, for the purpose specified.

22,665.—Ludwig Brumlen, of Hoboken, N. J., for an Improvement in the Mode of Making Oxychloride of Lead:

I claim the process, as set forth, in the description, of manufacturing oxychloride of lead from chloride of lead and subacetate of lead leaving in solution neutral acetate of lead free to be used over and over for the same purpose.

29,666.—R. D. Bryce, of East Birmingham, Pa., for an Improved Attachment of Covers to Glass Vessels:

I claim attaching metallic covers to mugs, pitchers, or other vessels of glass or earthenware, by hinging the upper hinge piece of the cover immediately to the handle of the vessel, or to a knob or projection one or near its rim, thus dispensing with a lower hinge piece of metal, substantially in the manner and for the purpose set forth.

29,667.—A. M. Burnham, of Montpelier, Vt., for an Improvement in Machines for Sawing Stone:

I claim the arrangement of the bar, g, arms, f, rock bars, b b', bent lever, E, the frame, C, and with the saws, D, and frame, B, the whole constructed and operating as shown and described, for the purpose set forth.

[This invention consists in the peculiar means employed for giving the saws a lateral vibrating movement while working in the usual reciprocating manner to produce the cuts, the lateral movement of the saws admitting of their oblique position relatively with each other, and enabling them to cut simultaneously the two opposite sides of a polygonal taper block.]

29,668.—J. Carl and J. W. Heath, of Grenada, Miss., for an Improvement in Casting Screw Augers:

We claim the combination of the shaft pattern, A, and the segmental spirals, H', constructed, arranged and applied in the manner set forth, for the formation of molds for casting spiral augers.

29,669.—D. P. Chamberlin, of Hudson, Mich., for an Improvement in Instruments for Pruning Trees:

I claim the combination of the oblique-cutting blade, with the cutting hook, the parts being arranged and operated substantially as and for the purpose set forth.

29,670.—Wm. Clemson, of Middletown, N. Y., for an Improved Saw-set:

I claim, first, The combination of the cam, E, and spring or trip hammer, H, with a suitable anvil, I, arranged for joint operation, substantially as and for the purpose set forth.

Second, Having the cam, E, slotted radially and provided with a bar, c, and screw, d, substantially as shown, for the purpose of rendering the cam adjustable, to move the saw a greater or less distance, according to the size of its teeth.

Third, The arrangement of the gage, K, formed of the lips, f f, at the end of the plate, L, and the slide, M, in connection with the cam, E, hammer, H, and anvil, I, for the purpose specified.

[This invention relates to a device for setting saws by power, the parts working automatically by the rotation of the driving shaft. The invention consists in the employment of a spring hammer, cam, anvil and gage, so constructed and arranged to operate that the desired work may be rapidly and properly done, and the device rendered capable of setting saws with different sized teeth.]

29,671.—Wm. Clemson, of Middletown, N. Y., for an Improvement in Tempering Saws:

I claim the fixed metal bed, A, placed over a suitable furnace, in connection with a suspended pressure metal block, D, operated by the inclined plane, G, and eccentric, I, or other suitable means to to give the block an oblique downward movement towards the bed, as and for the purpose set forth.

29,672.—Ephraim Cushman and J. R. Cushman, of Amherst, Mass., for an Improvement in the Manufacture of Leather Paper Stock:

We claim heating the stock while it is in the beating engine, and removing the impurities as they rise, as set forth, for the purpose specified.

29,673.—George Danforth, of Friendsville, Ill., for an Improvement in Corn-shellers:

I claim the arrangement together of the short and long springs, I, in the manner shown for the purpose specified.

[This invention consists in the employment or use of a series of springs placed in conical form, and so arranged that the ears of corn may be forced down between them and have the grain stripped from the cob thereby; the ears being forced down between the springs by means of a lever and a pin attached to a traverse bar fitted between suitable guides.]

29,674.—L. B. Darling, of Providence, R. I., for an Improvement in the Construction of Stone Tanks:

I claim a tank or vessel the bottom and sides of which each consist of one or more pieces or slabs of stone arranged and combined in the manner shown and described, with the plates, c, horizontal rods, d, plates, B B', perpendicular rods, C, and rubber packing, a—ail as set forth for the purpose specified.

[This invention consists in constructing tanks of any desired capacity of slabs of stone, such as serpentine, granite, or any other suitable stone or even glass, if convenient, which are brought together and clamped with metal rods and plates, with rubber introduced at the joints to form the packing.]

29,675.—Jacob David, of New York City, for an Improvement in Combined Shutters and Awnings for Windows:

I claim hanging blinds or shutters by a pivoted or swivel hinge at the top, using the ordinary hidge at the bottom, and applying hooks, g g, or their equivalents to the shutters inside and a suitable locking bolt to them, so that the shutters will serve either as such or as an awning in the manner substantially as described.

I also claim, in combination with the above, the side canvas as described.

[This invention consists in hanging window blinds or shutters by double swivel hinges at the top, and by ordinary hinges at the bottom, so that they will serve as shutters and, by a simple manipulation, a very good awning may be made for the rain and sun.]

29,676.—Armenius Davis, of Shelbyville, Ind., for an Improvement in Cane Guns:

I claim the arrangement and combination of straight, percussion bar, F, and trigger bar, D, when these are made with their various peculiarities as shown, and operated as described.

29,677.—James Dakin, of Cleveland, Ohio, for an Improved Mode of Elevating and Delivering Water from Wells:

I claim the inclined board, K, performing the several functions described, in combination with the spouts, A' and E', bucket, E, valve, M, rod, I, rope, S, and counter-balance weight, F—the whole being constructed, arranged and operated in the manner and for the purpose set forth.

29,678.—Wm. Deckmann, of Canton, Ohio, for an Improved Bedstead:

I claim the castings, A and B, as described, in combination with slides, D, and parts operating the same, as applied to bedstead fastenings.

29,679.—J. N. Dennett, of Bath, Maine, for an Improved Bed-bottom Slat:

I claim the combination and arrangement of the blocks, a b, the slat, c, the blocks, d e, and the stripe, g h, substantially as and for the purpose specified.

29,680.—Henry Disston, of Philadelphia, Pa., for an Improved Machine for Grinding Saw Blades:

I claim, first, Grinding saw blades by placing them on concave or curved plates and causing the plates to traverse in such a direction, in respect to a revolving grindstone, that the latter shall bend the blades into the concavity of the plates during or prior to the operation of grinding, for the purpose specified.

Second, Combining an endless chain of concave plates, G, with a revolving grindstone substantially in the manner set forth, so that a continuous succession of blades may be submitted to the action of the stone, as specified.

Third, The combination with the endless chain of plates, G, the adjustable guides, M M', or their equivalents—the whole being arranged and operating substantially as and for the purpose herein set forth.

Fourth, Causing the plates, G, as they pass beneath the grindstone to be tilted by means of an inclination in one of the guides, or any equivalent device.

29,681.—Aaron Douglass, of Paterson, N. J., for an Improved Lock Joint for Railway Bars:

I claim the process shown and described of making the lock joint, in Patent No. 14,863, as set forth.

[This invention consists in the employment of dies of a novel construction by the use of which, after the end of a rail is heated to a "welding point," the ends may be swaged into the desired shape, with the proper laps and shoulders; besides a swelled neck is produced at the ends, which adds materially to the strength of the joint when made.]

29,682.—E. G. Dyer, of Hamilton, Ohio, for an Improved Feed Motion for Sawmills:

I claim the arrangement of the sheaves or pulleys, F, reversing sheaves or pulleys, H and I, disk, J, and reversing lever, f, link, e, and bars, b b', or their equivalents, whereby motion is communicated to the feed gear of a log carriage in either direction substantially in the manner described.

29,683.—J. W. Evans, of New York City, for an Improvement in Fastenings for Cotton Bales:

I claim the application and use of the metal piece, A, bent in the shape of the letter S, and operating on the hoop in the manner and for the purpose substantially as described.

29,684.—Charles Fairfax, Jr., of Cincinnati, Ohio, for an Improvement in Couplings for Belts:

I claim the belt coupling described, consisting of two frames, A A, jointed together by rods, a a, and furnished with pins, b b, substantially as described.

29,685.—George Farmer, of Osceola, Fla., for an Improvement in Harvesters:

I claim the arrangement, as shown and described, of the rack bar, P, driving wheel, Q, rake head, J, shaft, R, pinion, S, and section cog wheels, m n, so that the section wheels will rotate the shaft, R, first in one direction and then in the opposite, thus causing the rack bar, P, to reciprocate and carry the rake, and also cause the latter to open and close—all as set forth.

Also, the making of the cutters with their rear ends bent up to fit the back part or edge of the cutter bar, and with their sides beveled and notched as shown, when fastened by the hooked bolts or nuts, d, in the manner shown and described; one edge of each cutter being held up by a hook and the opposite end being held up by the overlapping bevel of the edge of the adjoining cutter—all arranged as set forth.

[This invention relates to a novel and improved manner of attaching the sickle teeth to their bar, whereby the teeth may be readily detached from the bar and secured to it, thereby admitting of the sickle being easily kept in proper working order, as broken teeth may be easily replaced by new ones, and those dulled by use detached, ground and replaced without difficulty. The invention also relates to an improved raking attachment applied to the machine and operated in such a way as to form a simple and efficient mechanism for the intended purpose. The invention further relates to a novel arrangement of the platform and main frame of the machine, whereby the usual grain wheel and shoe are dispensed with and the position of the parts rendered favorable for the application of the raking attachment as well as for the means employed for regulating the hight of the sickle.]

29,686.—David Flannery, of Jackson, Miss., for an Improvement in Telegraphic Instruments:

I claim the arrangement of an electro-magnet and armature, a clock movement and escapement, and a resonance box, substantially as described.

[This invention consists in an electro-magnet and armature, a clock movement and escapement, and a resonance box—the whole combined to constitute a simple and cheap instrument for the production of sounds alone or sounds and marks at long or short distances without the aid of a local battery.]

29,687.—Wm. F. George, of Cincinnati, Ohio, for an Improvement in Stoves:

I claim, first, In combination with the outer casing, A, the oven, H, of the herein-described peculiar shape and form, the same being made to present a gradually-increasing sectional area in the manner and for the purpose set forth.

Second, Gradually diminishing the area of the annular flue, J, between the outer casing, A, and the oven, H, in proportion as the sectional area of the latter is made to increase in the manner as and for the purpose set forth.

29,688.—Christian Germann, of Camden, Mich., for an Improved Reciprocating Saw:

I claim varying the teeth of saw teeth as they approach the middle of the blade, and also diminishing their distance apart as they approach the middle of the blade, as and for the purposes set forth.

[This invention consists in varying the pitch of the teeth in the same blade and in gradually diminishing their obtuseness as they approach the middle of the saw blade.]

29,689.—T. M. Green, of Milledgeville, Ga., for an Improvement in Seed Planters:

I claim the arrangement of the sliding bars, C C, and serrated strips, G G, stirrers, I I, fastened to the sliding bars, connecting rods, D D, and driving-shaft cranks, F F, substantially as and for the purposes set forth.

29,690.—Origin Hall and Timothy Merrick, of West Willington, Conn., for an Improvement in Machines for Dressing and Finishing Thread:

We claim, first, The employment of grooves, e, upon the hot polishing cylinder, I, so that an increased extent of thread surface will be exposed to the heat of the cylinder, as set forth.

Second, The combination of the four adjustable grooved conducting rollers, C C1 C2 C3, with the brush cylinder, B, as and for the purpose shown and described.

Third, The combination of the adjustable rack-toothed slides, R R, pinions, T, roller, Q, standards, S, and cylinder, I, as and for the purpose shown and described.

[This invention consists in certain provision for adjusting the conducting rollers claimed by the same parties two weeks previously; it also consists in an improvement in the calendering cylinder by which the thread is finished after the action of the brushes.]

29,691.—Leonard Harriman, of Anderson, Ind., for an Improvement in Seed Planters:

I claim, first, The construction and arrangement of the teeth, E, when combined with a rotary seed planter as and for the purposes set forth.

Second, The combination of the carriage, A, levers I, rod, J, catch, K, and wheels, H, in the manner and for the purposes set forth.

Third, The arrangement of the slides, D, springs, G, and segmental cam, F, constructed and operating in the manner and for the purposes set forth.

29,692.—J. M. Hathaway, of New York City, for an Improvement in Handle Fastenings for Augers:

I claim the application of the slotted or notched key in combination with the correspondingly-notched auger or bit tang, both tang and key being provided with metal bearings by means of the metal ferule or its equivalent—the whole being constructed and operating substantially as described, for the purpose stated.

23,693.—Alexander Hay, of Philadelphia, Pa., for an Improvement in the Construction of Railroads:

I claim a railroad chair constructed substantially as described, for the purpose of holding the rails in place and, at the same time, supporting a railroad track, and so formed as to be screwed or driven into the foundation substantially as set forth.

I also claim the groove in the chair in combination with the groove in the rail, for the purpose of wedging the rail in place, when constructed substantially as described.

29,694.—D. K. Hickok, of Morrisville, Vt., for an Improved Clothes-drier:

I claim the arrangement of the grooved, headed standa d, A, closed cap hub, B, pins, h h', and cord, C, combined with arms, D, braces, E, and lower hub, c, as and for the purpose set forth.

29,695.—Thomas Hopkins, of Newport, Ky., for an Improved Sack-fastener:

I claim a sack-fastener consisting of two pins or buttons, A and A', and a connecting link, B, constructed and combined in the manner and for the purposes set forth.

29,696.—H. A. House, of Brooklyn, N. Y., for an Improved Gate:

I claim, first, The arrangement and combination of the toggle arms, D D', hand levers, E E', pendulum levers, B B', and gates, A A', constructed and operating substantially in the manner and for the purposes set forth.

Second, The combination with the toggles, D D', and hand levers, E E', of the weighted hinged dogs, F F', arranged substantially as and for the purpose specified.

[This invention consists in arranging a knee or toggle-joint and two pendulum levers in combination with two hand levers in such relation to the gate or gates, which are suspended from said pendulum levers, that by depressing either one or the other of said hand levers the pendulum levers are forced apart by the action of the toggle-joint and the gates are opened and kept open until the toggle joint is brought within a horizontal line drawn through its center. The invention also consists in combining with said toggle-joint and hand levers two hinged, weighted dogs, which retain the gates when closed and which are released by the levers before they act on the toggle joint, thus allowing the gates to open without obstruction when the levers are pulled, but preventing them from opening spontaneously or by the force of the wind or from any other cause.]

29,697.—R. B. Hugunin, of Cleveland, Ohio, and G. W. Whitney, of Berea Ohio, for an Improved Washing Machine:

We claim the arrangement of the grooves or corrugations of the surfaces, C D, to run in contrary directions as and for the purposes shown and described.

We also claim the arrangement and combination of the adjustable pressing lever, K, with the shaft, B, yoke, E', uprights, F, disk, D, and bottom, C, as and for the purposes shown and described.

[This invention consists in applying to a tub, with a fluted metalic plate in its bottom, a circular disk having its underside covered with fluted sheet metal; and in arranging this upper or rubbing disk in such a manner with relation to a central upright shaft and a coiled spring that the disk will be held down with a yielding power upon the clothes placed under it, and thereby adjust itself to the inequalities of clothing and also accommodate itself to garments of any ordinary size to be washed. It further consists in combining with said rubbing disk a yoke of a suitable character, for steadying the disk, to which is attached a rod, connecting with a bell-crank, for giving, by a rotary motion of the crank, an alternate, circular motion to the disk. With the disk and yoke is also combined a lever screw for compressing the clothes while in the tub, with sufficient power to squeeze the water out of them and render them comparatively dry. The machine combines simplicity of construction with great efficiency in its operation upon the work.]

29,698.—J. H. Irwin, of Beardstown, Ill., for an Improvement in Harvesters:

I claim the fingers, J, in combination with the sickles, K K', and the mechanism for operating them, arranged in the manner described, for the purpose set forth.

[This invention relates to an improvement in the cutting devices of harvesters, whereby, it is believed, the sickle is made to work with a more even or regular movement than the ordinary reciprocating ones, with less wear and tear of the parts connected with it, and also to cut with a less expenditure of power without being so liable to choke or clog.]

29,699.—Adolph Isaacsen, of New York City, for an Improvement in the Construction of Apparatuses for Destroying Insects:

I claim the new article of manufacture described, composed of the rubber bag or ball, A, the nozzle, B C, and strainer, b, arranged to operate together in the manner set forth.

29,700.—F. C. Kutt, of Hackensack, N. J., for an Improvement in Stopping and Starting Railroad Cars:

I claim, first, The arrangement of inclined planes, b b, on a car body, in combination with friction rollers, D, or their equivalents, constructed and operating substantially as and for the purpose specified.

Second, The combination with the car body, E, upon inclined planes, b b, and rollers, D, of a chain brake, G, constructed and operating substantially as and for the purpose set forth.

[The object of this invention is to take advantage of the momentum acquired by a car while in motion and apply it to the stopping and starting of the car, so that if the car is alternately started and stopped, the momentum acquired in stopping the car assists the animals drawing the car in starting it from a dead stand.]

29,701.—S. K. Landes, of West Cocalico, Pa., for an Improvement in Machines for Dressing Millstones:

I claim the combination of the movable frame carrying the band wheels, springs and cutters; the whole being arranged so as to move from right to left, or the reverse, by the shifting mechanism, substantially as described.

29,702.—Bernard Lauth, of Pittsburgh, Pa., for an Improvement in Rolling Iron Bars, &c.:

I claim holding plates, rods or bars of iron and steel under tension, longitudinally, by mechanical means, whilst they are being reduced or compressed between rollers, substantially as described.

29,703.—Lorenzo Lea, of Jackson, Tenn., for an Improvement in Surveyors' Leveling Instruments:

I claim connecting the bubble block and telescope of a leveling instrument with the tripod or supporting staff, by means of a curved spring, in combination with a single set screw, for the purpose of adjusting the position of the level in relation to the supporting staff or tripod, substantially in the manner described.

29,704.—Lewis Leber, of Springfield, Ill., for an Improvement in Cultivators:

I claim, first, The arrangement of the plows, K L, and the cultivator frame, substantially as and for the purposes set forth.

Second, The combination with a cultivator, of the swingle-tree, U, the crossbar, W, at the top of an elevated draught pole, two vertical levers, V V, and an arched yoke, Y, substantially as and for the purposes set forth.

29,705.—J. R. Marshall, of Marine, Ill., for an Improvement in Corn-stalk-cutters:

I claim the use of the three rollers, A A A (with knives set longitudinally on their peripheries), in combination with each other; and this I claim, not as a combination, except when the said rollers are arranged in separate frames, and the said frames are united in relation to each other in the manner shown, and by means of flexible joints, so that the said rollers can follow the uneven surface of the ground, and thus cut the stalks and litter that lie in the hollows and holes thereof.

29,706.—Wm. McAfee, of Summerville, Mich., for an Improved Gate:

I claim the combination with the central swinging and vertically moving post, A, in the manner shown and described, of the lifting levers, H H, ro s, l l, cylinder, E, inclined edged cylinde within E, and pin, G, for the purpose set forth.

[This invention consists in having the gate fitted centrally on curved inclined planes, and arranged with a central post or shaft, traversed pin, levers and rods, whereby the gate is opened by a combined vertical and rotating movement, and a very substantial gate obtained by the arrangement, and one that cannot casually open.]

29,707.—T. W. McDill, of Oquawka, Ill. for an Improvement in Cultivators:

I claim the arrangement of the axle, A, and bars, b b k k, and crosspiece, c, with the loose connection of the draught pole, B', to the machine, substantially as and for the purposes set forth.

[The object of this invention is to obtain a cultivator which may be readily manipulated, or which may be attended and guided with but little labor. This result is obtained in consequence of provision being made for controlling the implement with facility by giving some of its plows an independent adjusting movement independently of the draft movement, whereby the implement may be kept in its proper course and obstructions readily passed over; the implement, also, by a very simple adjustment, admitting of being readily drawn from place to place.]

29,708.—G. C. Miller and Richard Henry, of Cincinnati, Ohio, for an Improvement in Hillside Plows:

We claim, first, The described combination of the reversible share and moldboard, F, when formed entire of steel or wrought iron, and the separate cast swivel, F, the said parts being constructed, arranged and connected in the manner and for the purposes set forth

Second, The combination of the segmental bracket, H, slot, i, clamp screw, G, and moldboard, E, when constructed, arranged and operating in the manner and for the purposes set forth.

29,709.—J. A. Naylor, of Rahway, N. J., for an Improvement in the Extension of Seats for Carriages:

I claim the arrangement of the removable seat, B, supplemental seat, C, and hinged braces, D, operating together in the manner and so as to produce the effect set forth.

27,719.—Lewis Newsom, of Gallipolis, Ohio, for an Improved Device for Heating Rooms:

I claim the arrangement of the radiator, constructed as specified in the particular manner described, in relation to the fire-place and chimney.

29,711.—E. G. Niles, of Cincinnati, Ohio, for an Improved Cooking Range:

I claim the arrangement of the small supplementary oven, F, flues, H, and damper, I, in the described connection with and relation to the detachable supplementary furnace, K, and flues, G, of the main furnace, B, and oven, E; the said parts being constructed and combined and operating in the manner and for the purposes set forth.

29,712.—H. W. Norvill, of Livingston, Ala., for an Improvement in Car Brakes:

I claim the employment of the levers, H, the bars, B, lock bars, M, and buffer rods, I, arranged to operate substantially as and for purpose set forth.

[This invention relates to an improvement in that class of car brakes in which the power is applied through the momentum of the cars, as the speed of the latter is checked by the engineer. The object of the invention is to obtain a simple and efficient arrangement which will place the brakes under the complete control of the engineer, and by which the cars, in cases of emergency, may be suddenly stopped.]

29,713.—D. P. Patterson, of Fayette county, Pa., for an Improvement in the Construction of Distillers' Mash Tubs:

I claim the combination, with the stirring rake of a mash tub, of the perforated steam arms, A A', constructed, arranged and operating substantially in the manner described.

29,714.—N. A. Patterson and W. L. Ramsey, of Kingston, Tenn., for an Improved Washing Machine:

We claim the circular perforated and dish-shaped pressure plate, E, placed within a tub, A, and having the upper end of its shaft, j, fitted in a crank, f, of a shaft, D, all being arranged as and for the purpose set forth.

[An engraving and description of this invention will be found on page 160].

29,715.—S. J. Perry, of Columbia, S. C., for an Improvement in Drawing Boiler Tubes:

I claim the instrument composed principally of a screw, B, and attached cone or circular wedge, A, a set of connected clamps, G G, and a swivel, D E F, the whole combined and operating substantially as specified.

[The character of this very useful instrument can be understood by the claim.]

29,716,—David Ralston, of Carlisle, Pa., for an Improvement in Rock Drills:

I claim the arrangement of the adjustable frame, B, the spring, C, the drill, D, the cross-head, E, and guides, F, with the connecting rod, a, the bell-crank, b, the ratchet, c, and the ratchet wheel, d; the several parts being constructed and connected substantially as and for the purpose specified.

29,717.—A. C. Richard, of New York City, for an Improvement in Devulcanizing Waste Rubber:

I claim the described process by which waste vulcanized rubber is devulcanized, all as set forth.

29,718.—J. H. Reighard and C. L. Knecht, of Birmingham, Pa., for an Improved Attachment for Hinged Covers for Glass Vessels:

We claim attaching caps or covers to mugs or other articles of glassware, by means of a hole pressed through the glass handle of the vessel, through which is passed a metallic pin, attached to or forming part of the hinge of the cover, constructed and secured in the manner described.

29,719.—A. Roden, of Talladega, Ala., for an Improvement in Presses:

I claim the arrangement of two levers, K. N, and toggle-joints, G H, in combination with the follower of a press, substantially as and for the purposes set forth.

29,720.—J. B. Sargent, of New Britain, Conn., for an Improved Picture Nail Head:

I claim a head or knob made in three parts, substantially as described.

29,721.—J. P. Schenkl, of Boston, Mass., for an Improvement in Umbrellas:

I claim not only applying the slider or runner to the joint ring of the rib struts in such manner as to enable such slider to carry such joint ring and be turned or revolved therein and on the stick, but in constructing such slider and the stick with the bayonet studs and catches, or equivalent latching devices, applied to them, substantially in manner and to operate as described.

And in combination with the joint ring and the slider applied to it, and furnished with bayonet catches, as described, I claim constructing both bayonet catches with inclines or cams, and applying a retractive spring to the joint ring and the slider, so as to turn such slider in a direction contrary to that in which it may be moved by either cam, in order to effect the latching of a bayonet catch on its stud at either the opening or the closing of the umbrella.

I also claim the application of the rib cap and its retractive spring directly to the slider or the slider and its catches, so as to enable the rib cap to be moved with the slider, and operated relatively to the outer ends of the ribs or the ferrules thereon, essentially as above explained.

29,722.—George Scrimshaw, of Milesburg, Pa., for an Improved Composition for Pavements, &c.:

I claim the mixing of broken stone or cinder, coal ashes, gravel and coal tar, in the proportions substantially as mentioned, for the purpose of forming a composition for pavement, as described and set forth.

29,723.—Wm. Shearer, of Atlanta, Ga., for an Improvement in Pumps:

I claim, first, The combination of the screw piston rod, H, openings, O, with journal, J, and nut plates, b b, substantially as set forth.

Second, I claim the combination of the screw piston rod, H, with its pisten heads, i i, packings, j j, and plates, k k l l, with chambers, B B', and water passages, d e, arranged to operate in relation to each other, as and for the purposes set forth.

27,724.—J. S. Smith, of New York City, for an Improvement in Military Caps:

I claim, first, The arrangement of the annular channel, a, in combination with the tip, B, of a cap or hat, constructed and operating substantially as and for the purpose set forth.

Second, The combination with the annular channel, a, of a perforated false bottom, D, substantially as and for the purpose specified.

Third, The arrangement of the annual flange or lip, h, in combination with the ordinary ventilator, C, constructed and operating substantially as and for the purpose described.

[This invention consists in arranging in the upper part of a cap or hat an annular channel, with inclined sides, which communicates with the interior of the cap or hat and with the external atmosphere, through a series of apertures, in such a manner that the foul air from the interior of the cap or hat is allowed to pass freely out into the external air without allowing any water or rain to enter; also in combining with said annular channel a false bottom with a series of perforations, in such a manner that an air chamber is formed on the top of the cap or hat, and that the force of the sun's rays, as the same strikes the crown of the hat or cap, is broken before the same can have any injurious influence on the head of the wearer; also in arranging the usual circular perforated ventilators with an annular lip or flange under the ventilating holes in such a manner that the water, which may enter through these holes, is shut off from the interior of the cap or hat and caused to pass out through the holes on the opposite sides.]

29,725.—Walter Somerville, Jr., of Mitchell Station, Va., for an Improved Railroad Car Brake:

I claim, first, The arrangement for compressing air upon cars in combination with the brakes, for the purpose of operating them, whether applied to one car or to a train of cars, substantially as described.

Second, I also claim the arrangement of the cover, Z2, for the purpose of excluding dust and cinder and of admitting pure air into said pump, in combination with the tub, Z', substantially as described.

29,726.—P. H. Starke, of Richmond, Va., for an Improvement in Plows:

I claim the construction and relative arrangement of the wing, c c, and moldboard, a g i j k (fastened together by means of bolt, n, and hooks, f f, and slots, h h), the plow standard, b t s r, the point, d g i j k l m, and the landside, e r l m, all as shown and described.

29,727.—H. D. Stover, of New York City, for an Improved Shaping and Molding Machine:

I claim, first, So constructing and arranging the several parts of my machine, that the same arbor and cutter-head may be used vertically or horizontally, or any intermediate angle, and be moved to any such position with great celerity, and firmly secured therein to shape the various moldings or substances with the same head and cutters, essentially in the manner as described.

Second, Combining the laterally adjustable pressure rolls with the feed rolls and cutter-head, so that the axes of the former shall lie between planes perpendicular to the bed of the carriage and passing through the axes of feed rolls and cutter-head, substantially as and for the purpose set forth.

Third, The vertically moving carriage, U, with its slides, C', in combination with the slotted plate, F', arms, G', and cams, F'', upon feed roll shaft, arranged and operating substantially as specified.

Fourth, Forming the recesses of the cutters in a cylindrical cutter head, with their beds obliquely or angularly inclined to the axis of the shaft.

Fifth, The longitudinally adjustable guides, R', upon the table, C, when combined with the described cutter-head, operating as and for the purpose set forth.

29,728.—H. D. Stover, of New York City, for an Improved Planing Machine:

I claim constructing and applying an adjustable elastic or flexible wiper, K, and L, to effectually clean or wipe the finished board or surface of material being planed after leaving the cutting blades and before reaching the back rigid pressure roll, J, for holding down the board and not mar its surface, substantially in the manner and for the purposes set forth.

I also claim the combination of wiper, K and L, the front yielding pressure roll, I, the cutting cylinder, F, and the back adjustable but rigid pressure roll, J, for firmly holding down the board front and back of cutter and beautifully finishing the surface, essentially in the manner and for the purposes set forth.

29,729.—J. H. Tatum, of New York City, for an Improvement in Candle-wicks:

I claim the plaited wick for candles, composed of five strands, so arranged that the strands on either side of the wick run from both edges toward the center in an upward direction, or from the center toward both edges in an upward direction, as described.

[The structure of this wick is explained by the claim. The object of the invention is to obtain the necessary degree of capillarity, and at the same time to make the wick stand up stiff enough and make it turn out of the flame in order to be consumed.]

29,730.—W. W. Taylor, of South Dartmouth, Mass., for an Improved Tree Protector:

I claim making the tree-protecting trough in two parts, prepared and put together substantially as set forth in the specification.

I also claim the use of the cloth screen, or its equivalent, for the purpose of guiding the insects climbing over the trough, in place of the packing now used as a receptacle for salt, or its equivalent, all in the manner and for the purposes set forth.

I also claim arranging the dome of a tree protector, so as to throw the drip towards the tree and between the trough and the tree, substantially as set forth.

29,731.—T. S. Truss, of Darlington, England, for an Improvement in the Construction and Joining of Pipes:

I claim the making of an expansive or contractile joint by which pipes (for the transmission of gas, water, steam or other fluid) are to be secured together by means of a compressing or nut-coupling strap, in two or more parts, with packing material upon, between or around the ends of the pipes embraced by the strap.

I also claim as my invention the making of the junctures of coupling straps with recesses and corresponding projections or loose blocks.

I also claim as my invention the making of pipes with flanges at or adjoining their ends, to be used with or operated upon by a compressing or nut-coupling strap, with packing material upon, between or around the same and embraced by the strap. I wish it, however, to be distinctly understood that I do not claim pipes with flanges at their ends, secured together by bolts, pins or colters passing through the same.

29,732.—G. L. Turner, of New York City, for an Improvement in Railroad Car Springs:

I claim, first, The employment or use of india-rubber, or other similar elastic material, in connection with air-chambers between said rubber and suitable metal plates, when said air-chambers communicate directly with the external air, either by means of perforations, p, or by valves, t, or when said chambers are provided with bearing plates, D, to prevent the eventual filling and permanent occupation of the air-chambers by the rubber under compression, substantially as and for the purpose set forth.

I also claim the construction of the plates with protuberances, l, or concaves, d j, u on them and distributed over the faces of the plates at intervals, substantially as shown, for the purpose of graduating the strength or resistance of the springs, when they are compressed as set forth.

29,733.—James Van Valkinburgh, of Binghampton, N. Y., for an Improved Machine for Cleaning Rice:

I claim, first, The employment of the device, E, when constructed with spiral flanches, f, which are set tangentially on a hub, g, which is provided with steep inclines; all in the manner and for the purpose set forth.

Second, The deflecting step, h, when made conical or concave round its circumference and without spiral projections or ledges, in combination with a screw, E, as and for the purposes described.

[This invention relates to certain improvements in that class of rice-cleaning machines in which a rotary screw is employed within an ellipsoidal mortar, and arranged in such a way that the rice, by the rotation of the screw, will be subjected to an action within the mortar, favorable to the removal of the pellicle or inner coating which encompasses the kernels or grains, and which is not removed during the hulling operation.]

29,734.—C. L. Waffle, of Sharon, Ohio, for an Improvement in Corn Planters:

I claim the disk, S, pin, T, and notches, a e i, when these are arranged substantially as described, in relation to other parts, for depositing and covering the grain, immediately beneath the periphery of the main wheel, or for scattering the grain before or behind its track, as specified.

29,735.—Miller Warren, of West Middleburg, Ohio, for an Improvement in Seed Planters:

I claim the arrangement of the levers, K K', rods, V V, rake, U, delivering slide, H, and seed-box, M; the whole being constructed to operate as described, for the purposes set forth.

29,736.—P. B. Wever, of Scarborough, Ga., for an Improved Cotton Press:

I claim the combination with the hinged parts, k, of the springs, n, rods, o, pulleys, p, and ropes, q, as and for the purpose shown and described.

[This invention relates to certain improvements in that class of presses in which a right-and-left screw is used, in connection with toggles, for applying the pressure to the substance to be pressed. The object of the invention is to expedite the pressing operation, and also to facilitate the placing of the loose cotton within the press-box, as well as its removal therefrom in bale-form.]

29,737.—L. B. White, of Moscow, N. Y., for an Improvement in the Construction of Hernial Trusses:

I claim the connection or combination of the spring, S, by means of the hook, immediately with the lever of the truss, herein described.

29,738.—Luther Whitman, of Winthrop, Maine, and Ezra Whitman, of Baltimore, Md., for an Improvement in Casting Cylinders for Threshing Machines:

We claim the method described of casting threshing-machine cylinders in a single piece, and having rectangular tapering holes in them for the reception of the threshing teeth, as set forth.

29,739.—J. D. Willoughby, of Petersburg, Va., for an Improvement in Machines for Forming Grooves in the Necks of Cans, &c.:

I claim the combination of the mouth-piece, A, the springs, B and C, and the pins, a a, when the same are so arranged as to form grooves in the necks of cans, jars and bottles, when the material is plastic, substantially as specified.

29,740.—G. J. Wilson and D. H. Fox, of Reading, Pa., for an Improvement in Gas Meters:

We claim, first, The application of tube, V, of any convenient length, size, shape or form, and located at any convenient place in or on the meter, with one end open inside of the meter at or about the working water-level of a wet gas meter, with the other or outer end opened or closed by a screw or otherwise, at or about the water-level of the water.

Second, The application and combination with tube, V, and the other general arrangement of a wet gas meter, of a filling tube, W, of any convenient size, shape or form, with the lower end passing below the water-level of the meter, and the upper end passing high enough to overcome the pressure of gas in the meter, to prevent an overflow of water, with an open filing tube, also, to admit of water being filled into the meter without turning-off the gas.

29,741.—Bancroft Woodcock, of Williamsburg, Pa., for an Improvement in Plows:

I claim, first, The cutter, C, as set forth, in combination with the corresponding fitting part in the face-side of the landside, L, and the upper part of the landside made sharp, that when it and the cutter are united, they form one continuous cutter, as substantially described, when said parts are combined with the moldboard, M.

Second, The arrangement of the movable point, P, with its sections, as set forth, and the share, S, with its upper and lower sections, as stated, and the knob, p, on the lower edge of the landside, L, for the purpose named, in combination with the point and share, as specified above.

Third, In combination with the above, I also claim the arrangement of the clevis, D and circular saw, A; the whole being constructed as and for the purpose set forth.

29,742.—Charles Worden, of Ypsilanti, Mich., for an Improved Apparatus for Regulating the Flow of Water from Cisterns:

I claim the combination of the float, piston and box, with partitions, B and W, having openings, J G F, and pipes, A and K; the whole constructed, arranged and operated in the manner and for the purpose set forth.

29,743.—John Bird, of Birmingham, Pa., assignor to Bakewell, Pears & Co., of Pittsburgh, Pa., for an Improved Fastening for Metallic Covers to Glass Vessels:

I claim attaching the metallic hinged cover to lager bier glasses and other vessels made of glass or earthenware, by means of a lug or lugs pressed on the rim of a vessel, having a suitable cavity in it, if there be one lug only, or between them if there be two lugs, in combination with a hinged cover having a tenon or pin to fit into said cavity attached to the lower hinge piece; the whole being arranged and constructed and attached substantially as described.

29,744.—H. A. Chapin, of Springfield, Mass., assignor to Wm. L. Schoener & Co., of New York City, for an Improvement in Stop-cocks:

I claim, in combination with the valve, B, and its seat and opening in the shell, C, the valve, G, and its seat and opening, F, in the shell, A; the several parts being arranged to operate as set forth and described.

29,745.—Henry Demmick (assignor to himself and P. H. Jackson), of New York City, for an Improvement in Flasks for Casting Iron Columns:

I claim the flask for casting columns, composed of two cheek pieces, b b, hinged on to the knowl, a, and provided with the sand cleats, g', as and for the purposes specified.

I also claim the movable metallic sand flanges, h h, formed with dovetail bases entering between the ribs cast on the inside faces of the cheeks, b b, so as to be removable at pleasure, as set forth.

I claim the divided cheek pieces, b b, and clamps, f f, fitted in the manner specified, so that the flask can be enlarged by separating said cheek pieces and introducing a bar between said parts, as specified.

29,746.—Isaac Rogers, of North Haverstraw, N. Y., assignor to Samuel Daskam, of New York City, for an Improvement in De-oxydizing Ores:

I claim the revolving cylinder, e, fitted with the helical or screw-formed divisions, 16, to receive the metallic ore in a pulverized state, and to submit the same to heat and constant agitation by the revolution of the cylinder, while the ore is gradually passed from one end of the cylinder to the other by the division, 16, as specified; the metallic ore being supplied through the hollow journal, 11, or its equivalent.

I also claim the arrangement of the flues, 7 7, in the chamber, d, with the flues, 3 and 14, to heat the cylinder, e, when combined with the dampers, 4 and 15, or their equivalents, to regulate the direction of the draft and the consequent heat of the cylinder, e, as specified.

29,747.—E. F. Reynolds, of West Farms, N. Y., assignor to himself and G. E. Sherwood, of Morrisania, N. Y., for an Improved Telegraphic Instrument:

I claim, first, The employment of one and the same type wheel, B, when the same has a continuous rotary motion, as described, for the purpose of transmitting and receiving messages; but this I only claim when constructed, operated and operating as set forth.

Second, The arrangement of the series of cogs, g g*, on the underside of the type wheel, B, in combination with a corresponding series of movable pins, e, operated by keys, E, and with a stop, s, on the lever, I, which carries the armature, constructed and operating substantially as and for the purpose specified.

Third, Arranging a stationary ring, d, forming the guide for a series of pins, l, in combination with a hooked cog, g*, on the underside of the rotary type wheel, B, substantially as and for the purpose described.

Fourth, The arrangement of the vibrating lever, l, and flaring teeth, k, in combination with the wheel, j, springs, n', and regulating screws, n'', constructed and operating substantially as and for the purpose set forth.

29,748.—John Kelly (assignor to himself and T. Coate), of West Milton, Ohio, for an Improvement in Machines for Picking Millstones:

I claim the combination of the right and left hand screw, E, with the reciprocating carriage, D, carrying the pick arms, G, bars, L, springs, K, and tappet cylinder, O, operating in the manner and for the purpose described.

[This invention relates to a machine for forming the email grooves between the large furrows of a millstone, an operation which is commonly termed "cracking," and which gives a "tooth" or grinding capacity to the stone. The object of the invention is to perform the above-mentioned work far more expeditiously than it can be done by hand, and in a more perfect manner.]

29,749.—J. H. Story (assignor to Cameron, Story & Malone), of Cincinnati, Ohio, for an Improved Machine for Dressing Joists:

I claim the combination of the saw, I, carriage, J, and pivoted swing frame, L, constructed, arranged and operating substantially as and for the purposes set forth.

29,750.—J. H. Swan, of New York City, assignor to A. G. Williams, of Brooklyn, N. Y., for an Improved Folding Chair:

I claim the combination of the legs, A A B B, jointed arms, G, and the back, F, attached by joints, a a, to the legs, A; all being arranged substantially as and for the purpose set forth.

RE-ISSUES.

Charles Wilhelm and Anna C. Wilhelm, of Philadelphia, Pa., for an Improvement in Lamp Shades. Patented May 3, 1859, re-issue dated August 14, 1860:

We claim, first, The combination of the metallic shade, A A' A'', with the paper pictures, C' D' E', between sheets of mica, as described.

Second, We also claim the combination of the metallic frame, A A' A'', and the pictures, C' D' E', upon paper or any other suitable substance, substantially as described.

Third, We also claim the combination of the metallic frame, A A' A'', and the pictures, C' D' E', upon paper or other suitable substance, and the mica lining; the whole being arranged substantially as set forth.

J. L. Lowry, of Pittsburgh, Pa., for an Improvement in Fire Plugs. Patented Feb., 22, 1859; re-issue dated August 14, 1860:

I claim, first, The construction of the chamber, J, so as to make it answer the double purpose of a through way for one or more branch pipes and a readily-accessible chamber for the reception of a valve or valves; thus making one pit and one cover common to two, three, four or more mains, instead of several, as now required; all substantially as set forth.

Second, Combining a fire plug with the chamber, J, and its branches, when the valve, V, is located as described, for the purpose

of effecting a circulation of the water under the valve of the fire plug to prevent it freezing.

Third, The combination with the fire plug and chamber, J, and branch pipes of the detachable many-valved hose branch (Figs. 8 and 10), when the said parts are constructed as described and arranged so that the nozzles of the hose branch stand at a convenient hight above ground for attaching the hose, sub tantially a shown and described.

Fourth, The removable gasket, c, in the ends of the branches or bowls, y, so as to renew the seats for the valves, b, when necessary, without disturbing the main or stop-cock; access to these gaskets being through the common chamber, j, as herein stated.

P. N. Burke, of Buffalo, N. Y., for an Improvement in Stoves. Patented July 19, 1859:

I claim the employment of diffusing plates, constructed substantially as shown and described, to promote the uniform distribution of the hot air, as set forth.

I also claim the arrangement and combination of the perforated plates, N R, the partitional plate, B, the flue, H, the fire-guard, I, hot-air pipe, L, and chamber, K, substantially as and for the purpose shown and described.

[This invention consists in perforating the top and bottom plates of the oven in such a manner that the highly heated air will be more equitably diffused through the oven than with ordinary perforated plates, in a stove where the cooking is effected by infected heat.]

J. W. Wheeler, of Cleveland, Ohio, for an Improved Method of Drawing and Delivering Water from Wells. Patented Jan. 17, 1860:

I claim, first, Operating the valve in the bottom of the bucket by the rear end of the trough; the lever actuating the trough being moved by the bucket, and the trough having a more rapid advance than the bucket, as set forth.

Second, I also claim, in combination with the above, the employment of a grooved pulley and weight to operate the bucket, having a strip of india-rubber fastened in the groove of said pulley, in the manner and for the purpose set forth.

J. M. Cooper, of Pittsburgh, Pa., assignee of S. W. Marston, of New York City, for an Improvement in Trigger-operating Revolving Fire-arms. Patented Jan. 7, 1857; re-issued July 26, 1859:

I claim, first, So constructing the lock of revolving-breech fire-arms, which may be operated by trigger, as that the hammer, when raised to full cock, preparatory to firing, may be retained in that position of unstable equilibrium until the piece is fired on a further pressure on the trigger, by means of a vibrating tooth or fly-tumbler, independently of any dog, pawl, catch, or other mechanical device for that purpose.

Second, So constructing and arranging the lock of revolving-breech fire-arms, susceptible of operation by trigger, as that, when the hammer is raised to cock, preparatory to firing, the trigger shall be held back or retained in a drawn position by means of a vibrating tooth or fly-tumbler.

Third, The use, in revolving-breech fire-arms, of a revolving tooth or fly-tumbler interposed between the hammer and trigger, and operating substantially as described by an upward pressure on the hammer, so as gradually to increase the leverage, and, consequently, the power applied to raise the hammer, and thereby reduce the effective resistance of the main spring, for the purpose of securing steadiness of aim and greater ease in firing, and also to allow the recovery of the trigger after firing for repeated action.

A. B. Taylor (assignor through mense-assignment to H. A. Burr), of New York City, for an Improvement in Machinery for Making Hat-bodies. Patented March 18, 1856:

I claim the combination of a vibrating concave surface, substantially as described, with an exhausted pervious cone on which the bat of flocculent fibers is held by the pressure of the surrounding air, substantially as and for the purpose specified.

And I also claim facilitating the removal of the bat from the pervious cone on which it is formed, by means of a blast of air forced into the cone, substantially as specified.

NOTE.—This week, as on many previous occasions, we chronicle the fact (alike gratifying to our clients and ourselves) that a large proportion of the above list of patents—THIRTY-NINE cases—were solicited through the Scientific American Patent Agency.

Notes and Queries

CORRESPONDENTS sending communications for publication in our columns are requested to avoid writing on both sides of a sheet of paper. This fault, though common to persons unaccustomed to writing for the press, gives great trouble to the printer (especially in long articles), and, when combined with illegibility of handwriting, often causes interesting contributions to be regretfully consigned to our waste-paper basket.

A. J. S., of N. B.—Appleton's "Cyclopedia" says that a good blacking for shoes is made by mixing 3 ounces of ivory black, 2 of molasses, 1 table-spoonful of sweet oil, 1 ounce of sulphuric acid, 1 ounce of gum arabic dissolved in water, and 1 pint of vinegar.

J. C., of Ind.—A locomotive does *not* exert a greater pressure on the track when starting with a train than when standing still.

M. B., of N. Y.—Yours received; but the use of cut-offs is so plain, and so well-understood by engineers, that it seems to us hardly worth while to explain it anew.

M. B. R., of Texas.—We know of no antidote for cynauret potass. It is certainly very desirable that an antidote should be found for this poison if it is used extensively for killing ants, as children are liable to get hold of it.

M. T. D., of Ky.—Clay is the cheapest and best substance which you can lay on the bottom of a pond to prevent the water escaping through a porous soil. The only way known to us for storing up a small stream of water is by the erection of a dam, whereby you will thus secure a considerable body of water for exigencies. The patent fee is $30 for every invention, with the exception of designs; the fee of the latter is but $15. An inventor can sell his invention before it is patented; but, generally, there are few who risk the purchase of an invention until a patent is obtained.

A. R., of N. Y.—Smee's battery is good for electro-plating. You will find a very full description of the whole process in Smee's "Electro-metallurgy," published by J. Wiley, of No. 56 Walker-street, this city. It would occupy a whole column of the SCIENTIFIC AMERICAN to give you the information requested, or we should give it to you with pleasure.

W. H. E. M., of Mass.—We prefer a round to a square rod for conducting lightning, because it has no sharp edges. Be sure and have the same mass of metal in each, as the conducting power is in proportion to the mass of metal—not the form.

J. H. A., of Cal.—Almost every plan and improvement which has been brought forward for saving fuel in steam engines has been described in the various volumes of the SCIENTIFIC AMERICAN. You will find a series of illustrated articles on boilers, furnaces and smoke-consuming arrangements in Vol. VII. (old series).

T. L. S., of Iowa.—In order to condense all the exhaust steam of your engine, and use it over again as feed, allow it to exhaust and condense in a close cold-water tank; then conduct it into an open pond, from which it may be taken by the suction pipe of the feed-pump.

AN ENGINEER, of N. Y.—There is an association of engineers in this city. Thomas B. Stillman is the president, and J. C. Merriam, secretary. They meet on Wednesday evenings, at their room, No. 24 Cooper Union Buildings. We think Lardner's work on the steam engine as good as any, but it is getting old. There is no good American work on the subject. To find the horse-power of an engine, multiply the area of the piston (in inches) by the pressure of the steam (in pounds) per inch, and the product by the distance (in feet) traversed by the piston per minute; divide the product by 33,000.

J. M., of Pa.—We do not know in what sense you use the word "decomposition," as applied to the atmosphere; certainly, not in a chemical sense, as the two gases are not combined, but only mechanically mixed in the air. New air would not be produced by evaporation of water, except to the very small extent that the air which had been absorbed by the water would be liberated.

INDAGATOR, of Pa.—Mercury at 40°, converted to vapor, expands 1,576 fold. Its capacity for heat is 33 times less than that of water. Linseed oil has not, properly speaking, any boiling point; at a temperature between 500° and 600°, it is decomposed, the three elements of which it consists—carbon, hydrogen and oxygen—forming new compounds, principally carbonic acid and carbureted hydrogen. The specific heat of carbonic acid is 221°, and of heavy carbureted hydrogen, 426°; water being 1,000°.

R. B., of Ill.—The Novelty Iron-works are located in this city. This company does not make locomotive engines. The Rogers Locomotive Works, at Paterson, N. J., are probably the largest in the United States.

R. D. R., of Tenn.—It is well-known that cedar chests and closets are excellent to keep furs and woolen goods free from moths. Many families cannot procure such chests without much trouble and inconvenience.

MONEY RECEIVED

At the Scientific American Office on account of Patent Office business, for the week ending Saturday, August 25, 1860:—

D. A. P., of Ind., $30; E. W. F., of La., $25; G. C. A., of Ky., $30; W. F. V., of Ohio, $25; W. W. J., of Va., $25; J. C. G., of Cal., $275; S. J. H., of N. Y., $55; C. D., of N. Y., $30; G. C. G., of N. Y., $30; D. L., of Pa., $25; J. H. K., of Mass., $30; G. D. W., of Mich., $20; A. R., of N. J., $25; J. H. H. B., of N. Y., $32; N. F. B., of Ill., $30; E. G. O., of N. Y., $35; A. B. P., of Texas, $25; E. E., of Mass., $25; N. J. H., of N. Y., $30; N. B. S., of Fla., $30; E. D. M., of N. J., $30; Z. McD., of Ky., $35; W. C., of Iowa, $35; M. W. W., of Mo., $30; I. P., Jr., of N. Y., $30; J. B. T., of Ill., $20; L. L. A., of Mo., $15; E. S., of N. Y., $30; J. W. H., of N. Y., $30; M. K., of N. Y., $32; A. S., of Pa., $25; E. D., of Mass., $30; J. B., of N. Y., $25; F. Z. N., of Conn., $25; B. F. C., of Conn., $30; C. H. C., of N. Y., $55; F. W. R., of Ind., $10; A. A. H., of N. H., $40; E. P. T., of N. Y., $30; I. G., of Pa., $25; W. H. S., of N. Y., $30; M. & C., of Ill., $25; W. W. D., of Iowa, $25; E. B. C., of Fla., $30; T. C., of Conn., $500; W. F., of Mass., $55; A. J. P., of N. Y., $55; J. F., of Va., $25; J. G. C., of Miss., $12; G. P. F., of N. Y., $25; C. & B., of Va., $30; T. & R., of N. J., $250; S. & H., of Ill., $30.

Specifications, drawings and models belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, August 25, 1860:—

J. B. T., of Ill.; J. B. McE., of Pa.; J. F., of Va.; A. R., of N. J.; J. G. C., of Miss.; S. & H., of Ill.; H. O. A., of La.; A. S., of Pa.; G. B. F., of N. Y.; A. R. P., of Texas; E. E., of Mass.; L. W., of Mass.; G. H., of Conn.; G. W. D., of Iowa; H. L. McN., of Mass.; E. G. O., of N. Y. (two cases); C. A. R., of Ala.; Z. McD., of Ky.; L. W., of Mass.; A. C., of Mass.; W. F. V., of Ohio; W. B. H., of Ga.; D. L., of Pa.; J. R. H., of Maine; F. Z. N., of Conn.; I. G., of Pa.; J. A. C., of Conn.; W. W. J., of Va.; A. A. H., of N. H.; C. H. C., of N. Y.; L. L. A., of Mo.; J. B., of N. Y.

NEW BOOKS AND PERIODICALS RECEIVED.

NATURAL PHILOSOPHY (School Series); published by Barnes & Burr, John-street, New York.

A good elementary work on natural philosophy, suitable for schools, is certainly a desideratum; and here we have it, ably edited by Professor Peck, of Columbia College, from Ganot's "Popular Physics," a French production. We consider it the best and most beautiful work on the subject that has yet appeared; and it will, no doubt, soon reach a wide-spread and deserved circulation. The common books on natural philosophy, used in our schools, are full of inaccuracies.

THE WESTMINSTER REVIEW; re-published by Leonard Scott & Co., corner of Gold and Fulton-streets, New York.

The most valuable feature in the "Westminster" is its able summary of contemporary literature.

THE MANUFACTURE OF VINEGAR—its Theory and Practice, with especial reference to the Quick Process; by Charles M. Wetherill, Ph.D., M.D., Member of the American Philosophical Society, Academy of Natural Sciences, Phs. Member of Indiana State Medical Society, &c. Published by Lindsay & Blakistone, Philadelphia, Pa.

This is a 12mo volume of 294 pages, founded on the German work of Otto, and seems to be an exhaustive treatise.

THE REASON WHY—Natural History; by the author of the "Biblical Reason Why," &c. Dick & Fitzgerald, publishers, New York.