

Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOL. XIII.

NEW YORK, APRIL 10, 1858.

NO. 31.

THE SCIENTIFIC AMERICAN,

PUBLISHED WEEKLY

At No. 128 Fulton street, (Sun Buildings,) New York,
BY MUNN & CO.

Q. D. MUNN, S. H. WALES, A. E. BEACH.

Responsible Agents may also be found in all the principal cities and towns in the United States.

Sampson Low, Son & Co., the American Booksellers, 47 Ludgate Hill, London, Eng., are the British Agents to receive subscriptions for the SCIENTIFIC AMERICAN.

Single copies of the paper are on sale at the office of publication and at all the periodical stores in this city, Brooklyn and Jersey City.

TERMS—Two Dollars per annum.—One Dollar in advance, and the remainder in six months.

See Prospectus on last page. No Traveling Agents employed.

Explosions in Molding.

We notice in one of our cotemporaries that while George Keyser was recently pouring some melted composition metal into journal boxes, at North Adams, Mass., an explosion occurred causing the molten metal to fly out in all directions, and some of it into his face, slightly injuring his eyes. The accident is attributed to some moisture having gathered in the cavity which was to receive the molten metal. This, we think, was the true cause of the explosion, as we have known like accidents occurring from similar causes; and we notice this one to give a word of advice.

Before metal is run into a mold it should be clearly ascertained that there is no water in it, because a very minute quantity is liable to cause an explosion when the molten metal comes in contact with it. In molding such simple things as rifle bullets, several persons have had their eyes permanently injured by neglecting this precaution. In the act of molding bullets it is not unusual to dip the mold into cold water, to cool it, and if not dried when the metal is again poured in, an explosion will certainly occur, and the lead, in all likelihood, will be thrown into the face of the molder. "A word to the wise is sufficient."

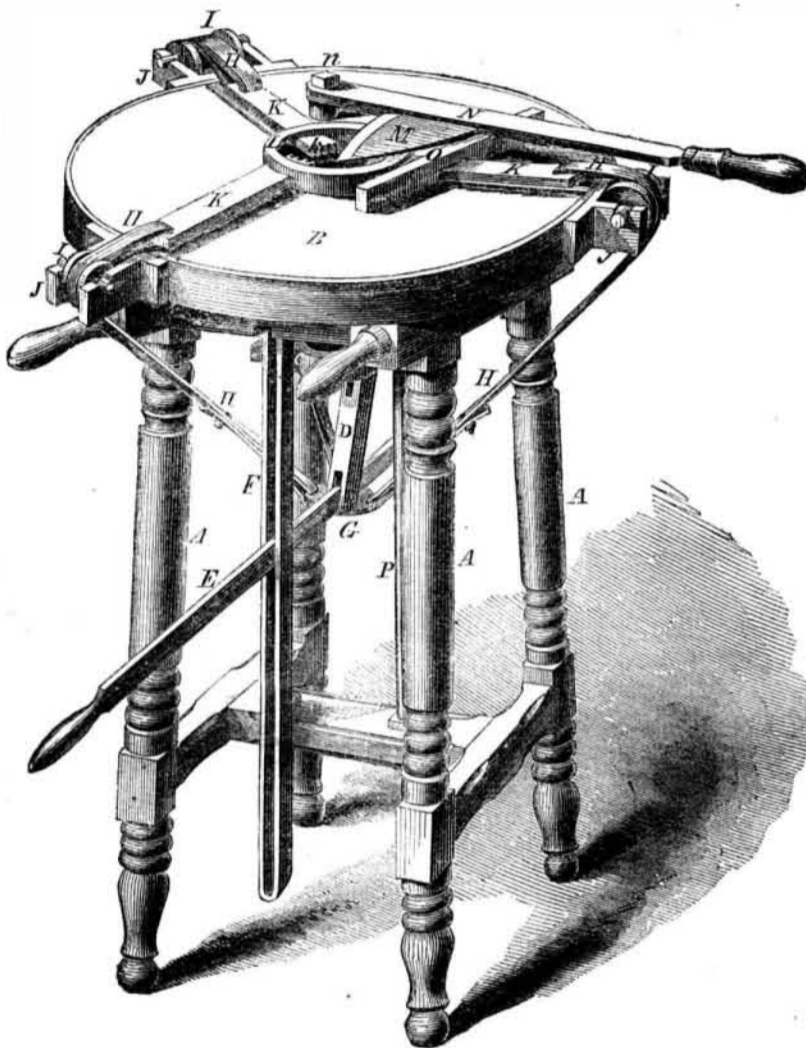
Painted Pails.

A correspondent writing from New Lebanon, N. Y., informs us that a cheap description of pails, "painted inside," are extensively used in that region for gathering maple sap; and as the paint is very soon removed, some persons are afraid of lead being in it, which is a dangerous poison. Our opinion is solicited in regard to this question.

Of course we cannot tell whether there is or is not lead in the paint employed for these pails, but if there is, the detection of it is a very simple affair. Let any person take one of these pails and scrape some of the paint from it into a tumbler, then pour some boiling hot soft water upon it, and stir it up for a few minutes. Now take some bi-chromate of potash, (a piece about the size of a pea,) and dissolve it in another tumblerful of water, and then mix the two solutions together. If there is any lead present it will form a light yellow precipitate; the iodide of potassium also forms a yellow precipitate with lead, and the hydro-sulphuret of ammonia a black precipitate. These simple re-agents can easily be applied to detect very minute quantities of lead in solution.

Our correspondent also asks us if it is advisable or right, to use pails that are painted inside for holding water or milk for drinking. We think it is not advisable to use such pails for these purposes, nor is there the least necessity for painting them. As white lead acts as a poison when taken into the stomach, it should never be used for painting any vessel designed to contain food or drink.

HURST'S IMPROVED CORN HUSKER.



The season will, in a month or two, be upon us, when green corn will form an article of general food, and the streets generally will be enlivened by the musical cry of "Hot corn!" It is, therefore, the proper time to illustrate corn huskers, so that before the crop is yet ready for gathering, the machines by which the ears of corn are prepared either for the market or the mill may be generally known.

The corn husker represented in our illustration is the invention of A. R. Hurst, of Chambersburg, Pa., and was patented by him on the 31st of March, 1857.

A are four legs, supporting the platform, B, having a circular hole through the center. On the bed-piece or platform, B, three metal plates, K, are placed radially from the center of B, and having their ends cut into teeth, k; they rest in slots in a rim, L, placed around the aperture in B. Each of these pieces, K, has a stop underneath it, which works on a rod placed in a groove in B. These pendants and rods serve as guides to K, and around these rods are also placed springs. To the outer end of each rod are attached straps, H, which pass over pulleys, I, on bearings, J, on the periphery of the bed piece, B. The springs on the rods have the tendency to keep the three pieces, K, in contact at their toothed end, k. To the lever, E, is pivoted the link, D, that is also pivoted to the disk, C. This lever works over another disk, G, that has the straps, H, fastened to it. The lever works in a guide, F. The disk, C, also works up and down in guide rods, P.

On the top of B a lever, N, is placed, hav-

ing a screw, n, at its end, to form a fulcrum, and it is also provided with an angular knife, M; it works over a piece, O, which always keep it in the same plane.

The operation is as follows:—The lever, E, is depressed, and the plate, G, is also depressed, the pieces, K, are drawn back, and the ears of corn are placed one at a time, point downward, through the opening in the center of B. The points of the ears rest in C. The corn is placed with the butt just below the inner ends of the plates, K; the knife, M, is then operated by the lever, N, and the butt or stick is cut off. The butt being then cut off, the lever, E, is released, and is brought back by the springs in the groove in B. The plates, K, then grasp the corn by means of these same springs, and the disk, C, is then forced upward by elevating the lever; and as the toothed projections, K, grasp the ear, the husks are retained, while the corn is forced up, perfectly free from the husk or shell. This machine can be worked rapidly, and there are no parts to become choked or clogged, so as to render it inoperative. It is compact, and judging from the one we have seen, it will do its work cleanly and well.

Any further information can be obtained from the inventor, by addressing him as above.

Starch from Horse Chestnuts.

This fruit contains a great quantity of starch, and as the tree will grow almost anywhere and everywhere, it would be advisable to apply the hitherto useless fruit to a valuable purpose. The tree is one of the most beautiful, and might well be planted along our streets and roads.

American Submarine Explorers at Sevastopol.

By the most recent accounts from Europe, we learn that both of the two American companies, which had formed contracts to raise the sunken ships at Sevastopol, have given up the project as quite impracticable. The hulls of these sunken vessels have been rendered completely useless by the *tredo* of the Black Sea. Some of these vessels were caulked and made seemingly tight for the purpose of pumping out the water prior to the act of raising them, but the timber was afterwards found so rotten that the water run through it like a sieve. The anchors and cables raised are sufficient to cover some of the expenses of the companies, but not the whole. No less than eighty-one vessels were sunk, and some of these were eighty gun ships—all are lost forever.

Diller's Axle Box.

We have previously noticed this invention on page 218 of the SCIENTIFIC AMERICAN, but it will be better understood by reference to the accompanying engravings, of which Fig. 1 is a perspective view, and Fig. 2 a section showing the lubricating grooves.

Fig. 1

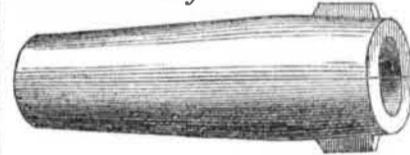
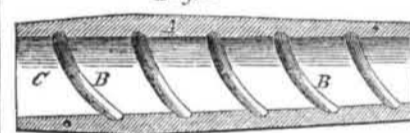


Fig. 2



A represents the axle box, which externally is of the usual form, and may have its inner surface chilled or not, as desired. Within the box, A, a series of grooves, B, are made. These grooves extend entirely around the box, and are inclined, as seen in Fig. 2. Any number of grooves can be used, according to the inclination and the length of the box. The grooves can be of any suitable width or depth, and are so arranged that the edge of one groove on one side of the box will nearly, if not quite, reach the edge of the adjoining groove at the opposite side of the box. As each groove extends entirely around the box, and as the base or inner diameter is of slightly taper form, the grooves, being inclined, will, of course, be slightly elliptic in their form. The grooves, B, are formed by having corresponding projections placed on the cone, and when the casting is made and the cone withdrawn, they can be planished, or cleaned out, and regularly formed by a proper tool, and the inner surface of the box bored out, reamed or smoothed.

When the arm is lubricated at C, the oil will collect in the grooves, B, they forming oil chambers; and as the box rotates, the whole surface of the arm is lubricated, the perfect lubrication being somewhat assisted by the slight longitudinal play of the arm. The bearing of the box is not much diminished, and the wear and tear will be less than if the grooves were made circumferentially in its center, to receive the lubricating material.

It is the invention of William Diller, of Lancaster, Pa., from whom any desired information can be obtained. Patented March 9, 1858.



Issued from the United States Patent Office
FOR THE WEEK ENDING MARCH 30, 1855.

[Reported officially for the Scientific American.]

CULTIVATORS—Joseph Banks, of Dadeville, Ala. : I claim the construction, arrangement and combination of the body of the implement and its movable teeth, as described, whereby it is readily adapted to properly receive in turn the several scrapers employed for performing the various modes of cultivation specified.

SUGAR MOLD CARRIAGES—C. E. Bertrand, of Williamsburgh, N. Y. : I claim the sugar mold carriage constructed and arranged to operate substantially in the manner described, that is to say, the platform in combination with stationary pins supported by two wheels and a caster, the standard of which bears against and pivots in the upper or brace plate, the latter being composed of semi-circular arms, holding in connection with guard chains or bars the circular molds, in the manner and for the purposes set forth.

REGULATOR FOR TIME-KEEPERS—Dana Bickford, of Westerly, R. I. : I do not claim the compensating curb.

But I claim fitting the compensating curb to a curved groove, or its equivalent, furnished with a number of set screws, which operate as described, to secure the curb in its place, and to adjust or vary the effective length thereof, and thus constitute a means of correcting its compensation.

[Full particulars of this invention will be found on another page.]

MACHINES FOR HULLING AND CLEANING CLOVER SEED—J. V. Blackwell, of Ovid, N. Y. : I claim the application of the gravitating curtain, H, at the point of the ejection of the blast, for the purpose of modifying and diffusing the same, and preventing the waste of seed, substantially in the manner shown and described. I also claim the combination and arrangement of the overshot grating cylinder, C, and feed roller, B, with the blast generator, G, and blast-regulating curtain, H, the whole operating conjointly in the manner and for the purpose described.

CIGARS—Thomas Blanchard, of Boston, Mass. : I claim the described cigarette or paper cigar, made in the manner substantially as set forth.

STAPLES FOR BLIND SLATS—Byron Boardman, of Norwich, Conn. : I am aware that spikes, bolts and staples for various uses have been cut with transverse furrows, and bearded diagonally and otherwise, for the purpose of holding with greater force when driven into wood; and that stems or shanks of fish hooks have been serrated with indentations for their greater security to a line, therefore I do not claim the cutting, to produce a bearded or ragged surface or edge either to spikes, bolts, or staples, except in manner and form as described.

Nor do I claim the production of serrated indentations on the shank of fish hooks, or any other article, except the wire staples, such as are used for the slats of window blinds and screens.

Neither do I claim the production of staples of any kind, when not pointed or serrated as described. But I claim constructing wire staples (such as are used for connecting the semi-revolving slats of window blinds and screens to a rod governing their positions) by giving them a rounded edge in the direction as shown at a, c, and an acute or sharp edge, as viewed cross-wise, as at f, h, in combination with transverse indentations across the wire, the whole being formed by compressions between dies, substantially as described.

PAPER FILES—W. Z. Chapman, of New York City : I claim the combination and arrangement of two or more wires, or their equivalents, on a rod, or its equivalent, substantially in the manner and for the purposes set forth.

I also claim the combination of the ring or rings, i, and lock plate, j, for securing the ends of the wires, as set forth.

HARVESTERS—George E. Chenoweth, of Baltimore, Md. : I claim compensating for the wear of the worm or groove in the driving cylinder, by making the parts of that cylinder adjustable, as described, thus giving increased certainty to the action of the cutters.

LUBRICATOR OF RAILROAD AXLES—William Clough, of Madison, Ind. : I do not claim the use of an arm deriving such a motion from the axle as to dip into the oil or grease, and deposit upon the journal at every revolution thereof.

But I claim the combination of the oiling finger, E, slotted arm, G, and wrist, b, in the manner and for the purpose described.

And I also claim making the oiling finger, E, sleeve, F, and slotted arm, G, from the same piece of wire, in the manner and for the purpose set forth.

[We have noticed this invention in another portion of this journal.]

OPENING AND CLOSING OUTSIDE BLINDS—John E. Clokey, of Washington, D. C. : I am aware that blinds and shutters have been opened and closed from the inside by various complicated contrivances; but this I do not claim broadly.

I claim the combination of the bent levers, d, with the bars, g, when they are constructed, arranged and operated in the manner described, and for the purpose specified.

SCREW-CUTTING MACHINE—Richard H. Cole, of St. Louis, Mo. : I claim arranging a set of vibrating chasers, a, in a revolving chuck, in such a manner that the said chasers may be opened and shut while the chuck is in motion, and of so constructing and adjusting the said chasers that they shall turn the bolt blank to a given size, and chase the thread on it in one and the same operation, substantially as shown on the drawing, and as described in this instrument.

And I also claim the combination of the two plates, N, and the cam, P, with the cross head, O, substantially as shown and described, for the purpose specified.

And I also claim combining the turning lathe with the screw-cutting machine, whereby the heads of the bolts are turned at the same time the chasers cut the thread on their points, in the manner set forth.

And I also claim combining a universal chuck in the opposite end of the same shaft on which the chasing chuck is fixed, whereby the nut can be tapped at the same time the thread is cut on the bolt, and with the same power and motion, substantially as specified.

HORSE HAY RAKES—Asahel Cowley, of Harpersfield, N. Y. : I claim the described combination of a separator with a wheel rake, the whole being constructed, arranged and operated in the manner and for the purpose as set forth.

MANUFACTURE OF SOAP—Dalrymple Crawford, of Toronto, Canada : I do not claim mixing flour, corn meal, starch, or vegetable matter generally with soap.

I do not claim making soap with a fat or oil and an alkali, with or without rosin.

But I claim mixing with soap the refuse from indian corn after it has been subjected to the action of alkali in extracting the starch, as substantially set forth.

FOLDING BILLIARD TABLE—Charley Croley, of Cincinnati, Ohio : I claim the arrangement of certain devices for folding and moving the frame of the table, and swinging the bed of the table as represented, consisting of the pieces, C, C, hinges, d and f, the levers, P, P, leg pieces, m, and rollers, n, and the links, g, g, and rollers, j, all connected and arranged as represented, and for the purpose specified.

COMPOSITIONS FOR TANNING LEATHER—Clinton Daniels, of Elk Horn, Wis. : I claim the combination and use of cream of tartar and bi-carbonate of soda with catechu in making a liquor, and using the same for tanning hides and skins, no claim whatever being made to the discovery and use of the catechu alone, for tanning purposes, by me.

BALANCE STEAM TRAP—W. M. Davis, of Philadelphia, Pa. : I lay no claim to the various parts separately.

Nor do I claim the forcing of the water through a submerged pipe by the pressure of steam upon its surface, thus forming a steam trap.

But I claim the construction of a balanced lever, through which a passage to discharge the excess of condensation is opened by the weight of such excess, in the manner, or an equivalent manner, to that described.

PRINTING PRESSES—G. W. Davis, of Seneca Falls, N. Y. : I claim the arrangement of the double armed lever G, plate, E, bed, C, and the adjustable spring ratchet, K', as and for the purposes shown and described.

[We give a notice of this in another column.]

DEVICE FOR PREVENTING CORROSION OF THE BINDING SCREWS IN GALVANIC BATTERIES—George Doyle, of Ottawa, Ill. : I claim making the connections of the battery by fitting the jars with covers of glass, glazed or enameled earthenware, gutta percha, or other insulating substance, with holes in them to receive the shanks of the binding screw sockets, and screwing the said sockets through the said holes into the clamps, for the plates with interposed washers of india rubber, leather, or similar protecting material, all substantially as described.

[See a description in another portion of this paper.]

ROTARY RECIPROCATING KNIVES FOR SMOOTHING STAVES—William B. Dunning, of Geneva, N. Y. : I do not claim the vibrating saws, as they have been used before.

But I claim the construction, arrangement and employment of the oscillating cutting tools for smoothing the stave, &c., substantially in the manner set forth.

SELF-LOOSENING HORSE AND CATTLE TIE—John J. Eshleman, of Lancaster, Pa. : I claim the bolt, B, in two sections, connected by the sliding scarf joint, H, for the purpose of instantly loosening the horse, as set forth.

I also claim the devices of the bolt, B, spiral spring, F, and casing, A, all in combination, operating together, substantially in manner and for the purposes set forth.

AXLE BOXES—William B. Fahnestock, of Lancaster, Pa. : I claim the combination of the axle and boxes, arranged and constructed as described, for the purpose of allowing the axle to turn and accommodate the wheel to the direction of the rail.

CAR WHEELS—William B. Fahnestock, of Lancaster, Pa. : I claim, first, The wheel with the hub outside of the tread or rim, and the bearing on the axle within the tread or rim, or at the balancing point.

Second, I also claim the combination of the independent wheel, bearing, K, and pivot, M, with the short axle, for the purpose of preventing the sliding and friction of the wheels on, or against the rail.

PNEUMATIC SPRINGS—W. R. Fee, of Cincinnati, Ohio : I claim the described pneumatic spring, having a hollow metallic piston working closely in a hollow metallic cylinder, and packed by leather and oil, for the purpose of increasing the elasticity of the spring, and preventing explosions and leakage, the whole being constructed substantially as set forth.

CANE FOR PAYING OMNIBUS FARES—Samuel W. Francis, of New York City : I do not limit myself to the arrangement just described, as I know it can be modified in a variety of ways to obtain the same result.

But I claim inserting pieces of money in a cane, for the purpose of handing omnibus fares, substantially as described and set forth.

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

METHOD OF LIGHTING GAS BY ELECTRICITY—Samuel Gardner, Jr., of New York City : I claim placing a coil of platinum wire, or its equivalent, in the relative position to the jet of gas, as described, for the purpose of lighting the jet by electricity, and for the re-igniting it when blown out under the circumstances and for the purposes set forth.

[This is an invention for lighting gas by electricity, and is an improvement on previous inventions and patents. It consists in placing the ignition coil at the side of the burner, instead of over it, and by that means prevents the cooling action of the gas upon the fine wire before it is ignited.]

MACHINE FOR TESTING AND MEASURING THE STRENGTH OF CAR SPRINGS—Perry G. Gardner, of New York City : I claim the combination and arrangement of the plunger, G, with the adjustable spindle, N, and adjustable knife-edge pivot, w, and the guide plate, Q, arranged and operating in connection with the balance beam, so as to test the power of the spring, and at the same time measure with great facility and rapidity the exact weight or pressure to which the spring has been subjected, the whole being adjustable to any required size or power of spring.

MACHINES FOR SLATING COAL—T. Garretson, of Pottsville, Pa. : I claim the construction of the sides of the screen and the openings, a, therein, substantially as described, to bring the said openings outside of the guard bars, B, B, and give to the said openings a tangential direction, and to form tangential, or nearly tangential, conductors, C, C, leading to the said openings, as set forth.

[The improvement in this machine is in the peculiar construction of the sides of a rotary screen, and of the openings in these sides, which encourages and permits the escape through these openings of pieces of thin flat form, like the pieces of slate in broken coal, but not of lumps of coal.]

HORSE-POWER MACHINES—James Grant, of Rochester, N. Y. : I claim making iron horse-powers with an open center to the caps, A, and an adjustable or fixed bridge-piece, a, and making a double length or reversible pinion, B, as and for the purposes specified.

CONSTRUCTING DOLLS' HEADS—Ludwig Greiner, of Philadelphia, Pa. : I claim strengthening the seams and protecting the exposed parts of doll heads, by cementing or pasting on those parts, muslin, linen, silk, or other equivalent material, in the manner and for the purpose set forth.

APPARATUS FOR MANUFACTURING WHITE LEAD—Henry Hannen, of Dubuque, Iowa : I claim the pipe, G, with its branch pipes, J, and stop cocks, n, the pipes C and E, and the diffusing pipes, B and a, and their respective stop cocks, g and l, in combination with the valves or stoppers, g and l, the whole being arranged and operated in the manner substantially as described, for the purpose of exposing the metal to the action of the different agents employed, alternately and successively.

CLOTHES' DRYER—J. J. Hamilton, of New Castle, Ind. : I claim the application of the roller and pulleys to the arms, and the folding of the arms to the post.

SELF-WAITING TABLE—G. W. Hagey, of Smithland, Ky. : I claim the handles, F, for the purpose of turning the table, and to which a table cloth may be buttoned, substantially as described.

SAWING MILL—Wm. Hawkins and Wm. C. Clary, of Milwaukee, Wis. : We claim the manner described of automatically changing the saws after each cut, alternately from an oblique position in one direction to an oblique position in a contrary direction to the line of the log carriage by means of the studs, p, slide, K, double lever, M, connecting rods, d, in combination with the frame, F, and the guides, n, and n', for the purpose set forth.

We also claim the use of the two-wedge rollers or wedges, P, P', to keep the board clear of the saw, while cutting in either direction, substantially in the manner described.

We also claim the combination of pinions, i, and their pins, o, entering into recesses of plates b, the ratchet wheels, g, the ratchets, r, the adjustable segments, j, the wheels, G', the screws, G, and the rods, k, with their clutches, z and v, for the purpose of automatically setting the log to the saw, and stopping the setting when the log frame advances too close to the saw.

We also claim the notched plate, t, in combination with the latch, g, lever, u, and link, l', for the purpose of operating the belt shifter, l, without turning the lever, u, substantially in the manner set forth.

HEATING APPARATUS—F. L. Hedberg, of New York City : I claim the arrangement within the case, A, of the firebox, B, spark or draft chamber, J, and the flue and air pipes, M, N, the whole being surrounded by water space, and connected and arranged substantially in the manner and for the purpose set forth.

RAILROAD CAR WHEELS—Wm. W. Hubbell, of Philadelphia, Pa., and R. H. Hubbell, of Delaware County, Pa. : We claim the circular vertical flanges of the rim and plate cast separately, turned off smooth and fitted together, substantially as described.

Also, The central plate strengthened with ribs and made thicker around its water edge where it is secured to the rim in combination with the vertical flanges on the rim and plate, substantially as described.

GAS GENERATORS—John G. Hock, of Newark, N. J. : I do not claim broadly, to be the first inventor of retorts having perforated bottoms and chambers, nor do I claim the chambers, B', C, separately considered, substantially as shown and described.

What I claim is the arrangement together of the rain retort, B, chambers, B', C, and open space, c, substantially as and for the purposes set forth.

[A notice of this invention will be found on another page.]

COMPOSITION FOR COATING TELEGRAPH WIRES—J. B. Hyde, of New York City : I do not wish to be understood as confining myself to the precise proportions set forth.

But I claim an insulating compound for telegraphic wires formed by mixing boiled linseed, cotton seed, or rosin oil, with natural or artificial asphaltum, substantially in the manner as described.

STRAW CUTTERS—W. W. Hollman, of Eddyville, Ky. : I claim the combination of the movable bottom, which is constructed as set forth, with the cam shaft, C, cams, A and B, and connecting rod, D, for giving a projection of straw under the knife by raising the lever, W, said projection being gaged and furnished by the upward and downward motion of the lever, in this manner and for the purpose set forth.

COFFEE AND TEA POTS—J. M. Ingraham, of New York City : I claim the steam tight coffee pot, the filterer, c, with the conical chamber, B, B, and the siphon combined, arranged and operating in the manner and for the purpose as described.

AIR HEATING FURNACES—T. D. Ingersoll, of Monroe, Mich. : I claim constructing the radiator, B, and arranging the dampers, H, I, within it, substantially as shown, so that the dampers may perform the double function of dampers and scrapers, as set forth.

[The invention in this furnace is in the arrangement of the radiators and dampers, so that the dampers may be made to perform the double function of dampers and scrapers, and the radiators will thereby be kept perfectly clean.]

CHURN—J. A. Jordan, of Shelbyville, Tenn. : I claim the employment of the revolving wheel, D, and stationary wheel, C, constructed and operating in the churn as set forth, the bottom of the same being fitted to a stove casing in the manner and for the purposes specified.

COMBINATION OF LEAD PENCIL AND ERASER—H. L. Lipman, of Philadelphia, Pa. : I do not claim the use of a lead pencil, with a piece of india-rubber, or other erasing material attached at one end for the purpose of erasing marks.

But I claim the combination of the lead and india-rubber, or other erasing substance in the holder of a drawing pencil, the whole being constructed and arranged substantially in the manner and for the purpose set forth.

SCISSORS SHARPENER—J. C. Loveland, of Springfield, Vt. : I claim as a new article of manufacture the described instrument for sharpening scissors, consisting essentially of the revolving file, B, and guide, d, constructed and operating in the manner substantially as set forth.

DIVING BELLS—Benj. Maillefert, of Astoria, N. Y. : I claim the combination of the reservoir, C, with the bell, A, and tube, B, as and for the purposes set forth.

[A notice will be found in another column.]

LATHIE CHUCK—J. L. Mason, of New York City : I claim the chuck described for spinning screw caps, &c., having a flange or rounded thread and a rounded groove, the groove and thread vanishing gradually at the flange, substantially as described.

WINDLASSES—Joseph P. Manton, of Providence, R. I. : I do not claim the brakes, for they have been previously used, and I am also aware that pawls, ratchets and gearing have been used and arranged in various ways, for the purpose of varying the speed and power of windlasses by simply reversing the movement of the driving shaft or arbor.

I therefore do not claim, broadly, such device, irrespective of the described arrangement of parts.

But I claim the arrangement of the pawls, g, h, wheel, N, hub, P, ratchets, S, and gearing, Q, R, F, G, so as to operate as and for the purpose set forth.

[This is an improvement in that class of windlasses in which the drum may be operated with two different speeds, and power obtained when necessary by sacrificing speed and *vice versa*. The invention is in a peculiar arrangement of pawls and gearing, whereby the desired end is attained by very simple means, thus rendering the windlass as a whole extremely light, durable and efficacious in its operation.]

WASHING MACHINE—James McVicker, of Green Co., Pa. : I claim forming a receptacle within the wash-box for containing the clothes to be steamed preparatory to their being washed by means of the ribs or slats, m, attached to the wash-box, and the ribs or slats, r, attached to the lid, P, so that upon opening the lid of the wash-box, the receptacle also is opened for the introduction or removal of the clothes, substantially as described.

TICKET HOLDERS FOR RAILROAD CARS—M. L. Mickles and L. S. Olmsted, of Aurora, Ill. : We claim a ticket-holder, composed of two chambers or compartments, A, B, into the upper one of which the ticket is placed and exhibited, and thence transferred to the lower one in the act of closing and opening the door of the upper compartment, by means of the movable floor, and ledge or projection, P, all operating substantially in the manner and for the purposes specified.

WRENCH—Archibald Murray, of Troy, N. Y. : I claim my improved adjustable wrench, in which the movable jaw is fastened to the fixed one, by means of a ring or collar which surrounds and slides upon the shanks of both jaws together, substantially as described.

DESK SEATS FOR SCHOOLS—Chas. Perly, of New York City : I claim supporting the seat by a bracket extending from the pedestal or column of the desk, whether said seat be a permanent fixture, or fitted to swing around substantially as and for the purposes specified, whereby the floor is unobstructed by the separate legs or pedestals of the seat, and greater facility afforded for clearing the room, and more space given for the feet of the scholars.

BRICK MACHINE—J. L. Ransom, of Charleston, S. C. : I claim the box, B, provided with the follower, C, in combination with the roller frame, I, feeding-bar, L, and scraper, G, when the whole are arranged relatively with each other, so as to operate substantially as and for the purpose set forth.

I also claim the adjustable roller, i, arranged as shown, and operated by means of the cams, l, on shaft, J, substantially as and for the purpose set forth.

[We have given a notice of this machine in another column.]

SEWING MACHINES—O. L. Reynolds, of Dover, N. H. : I claim the loop distended, t, operated by an operating in combination with the shouldered looper, l, substantially as and for the purpose set forth.

[This invention relates to that description of sewing machine in which a needle and looper are employed, with a single thread to form the chain stitch. It consists principally in a device termed the "loop distender," operating in connection with a looper of suitable construction for the purpose of distending the loop in a proper manner, and to a proper extent to ensure the entrance of the needle.]

RAILROAD CAR COUPLINGS—J. W. Rice, of Springfield, Mass. : I do not claim the hook link, as that has been used before, but was found defective, as the hook link would work out when the cars were in motion, and hence was abandoned as dangerous and unsafe.

What I claim is the fulcrum drop, B, and notches, l and l', on the underside of the hook link, C, and the rod, G, when used in combination with each other, for the purposes substantially as described.

RAILROAD BRAKES—J. C. F. Solomon, of Baltimore, Md. : I claim, first, The employment of small auxiliary wheels between the main wheels of the locomotive and several cars of the train, said wheels being adjustable up and down, substantially as and for the purposes set forth.

Second, The combination with the said auxiliary suspending and compensating wheels of a brake, which is constructed and arranged substantially as and for the purpose set forth.

[See notice on page 246.]

STOVES—S. T. Savage, of Albany, N. Y. : I am aware that stoves have been constructed with grates open all round or basket-wise, so as to use the radiant heat from the back of the fire for roasting or other cooking, but that arrangement does not effect either one of the objects of my invention as stated, and I therefore disclaim any such construction or arrangement of grate and stove.

But I claim in furnaces or stoves the employment of a receptacle for the fuel, closed at front and partially at bottom, with open grate bars for a part of its bottom and for the rear, opening into an air or draft chamber between them, and the back plate of the fire chamber, substantially as described in the specification and for the purposes set forth.

CASTING TYPES FOR PRINTING—George Schaub, of Hamburg : I wish it to be understood that I do not limit myself to the precise details described and represented, as the same may be varied without departing from the nature of my said invention.

But I claim the new or improved manufacture of types for printing before described, and illustrated by the accompanying drawing, that is to say, manufacturing types for printing by casting the stems or bodies of the types at the back of a sheet of type heads, and finishing the same as described; also the manufacture of spaces used in setting up printing types by the use of the movable frame described and represented.

APPLYING PENDULUM POWER—Andrew Slevin, of Ann Arbor, Mich. : I am already aware that bevel wheels, pawls, ratchets, pendulum, &c., have been heretofore in use for some mechanical purpose or other, and therefore I do not claim any one of them separately.

nor do I claim the bevel wheels, pawls, and ratchets, causing thereby of themselves rotary motion.

But I claim the peculiar combination of the pendulum, bevel wheels, pawls, and ratchets above specified, for the purpose of obtaining a rotary motion from the reciprocating motion of the pendulum for the uses and purposes described and set forth.

TUBULAR WROUGHT IRON SHAFTS—W. A. Stevens and R. Jenkins, of Covington, Ky. : We claim the manufacture of wrought iron bars for the tubular shafts, shafting, or other purposes, by rolling from a solid pile in a system of grooves, substantially like that described, by which the pile is first flattened, then grooved longitudinally, and afterwards has the sides of its groove closed together and welded as set forth.

[See another page.]

SHELLING PEAS—Wm. J. Stevenson, of New York City : I do not claim separately and broadly the employment or use of rollers as separators, for they have been previously used for such purposes, as for instance in the roller cotton gin, where the seed is stripped from cotton by the same process as herein described.

Neither do I claim broadly the employment of the rollers with an endless belt or carrier, irrespective of the construction of the same, and its arrangement with the rollers, whereby the apron serves as a carrier for the pods, and allows the shelled peas to pass through it.

I claim the combination of the rollers, C, E, and endless cords, F, arranged to operate substantially as for the purpose set forth.

[A notice of this will be found on another page.]

CROSS-CUT SAWING MACHINE—Geo. Telford, of Pike, N. Y. : I do not claim attaching a saw to a reciprocating bar, which is fitted in or allowed to work through an adjustable frame for the purpose of allowing the saw to be elevated, so that the log may be fed to the saw for this device has been previously used. Nor do I claim the swinging guide bar, N.

But I claim the bar, H, with saw, M, attached to the arm, F, connecting rod, E, and wheel, D, when arranged relatively with each other as shown, and for the purpose set forth.

I also claim the bar, H, and saw, M, operated as shown, in combination with the log carriage, O, and cylinder, F, grooved and armed with spikes, the whole being arranged to operate substantially as and for the purpose set forth.

[This is described on another page.]

MASTIC COMPOSITION—Joseph Thompson, of North Wrentham, Mass. : I do not claim any particular oily residue, or mixture of tar, pitch or bitumen as a component part of a mastic, but use each of them as best adapted to mixing with the new material, which serves as a basis.

Nor do I claim or use sand, brick dust, gravel, or any of the earths and oxids heretofore used in such mixtures.

I claim the right of using the naturally finely divided remains of silicious rocks, which have an alkaline action on test paper, as Fuller's Earth, instead of sand, gravel or other solid material.

HARVESTERS—William Van Antwerp, of Poughkeepsie, N. Y. : I claim the use of a rectilinear spring in combination with the detent cam, J, having guides, K and K', on the face thereof, for the purpose of actuating the

cutter of a harvester machine endwise in opposite directions from a state of rest, by the impulsive stroke of the spring, which said spring is charged by its opposite curvatures, while the cutter remains at rest, the said parts being made and operated substantially as set forth.

Second, I also claim the employment and use of the cam wheel, J, having on its face guides, K1 and K2, substantially as set forth in combination with a crank shaft for the purpose of giving two vibrations to the cutter to one revolution of the cam wheel, substantially as described.

Third, I also claim the combination of the springs, (or springs as may be used) with the cam wheel, crank shaft and vibrating lever attached to the cutters for the purpose of operating the same, substantially in the manner set forth.

TEMPERING AND HARDENING STEEL AND IRON.—Horace Vaughn, of Providence, R. I. Patented in England Dec. 21, 1851: I do not claim the use of the within named substances, when the same are used in a state of aqueous solution.

But I claim the use of a bath of chloride of sodium with or without ferro-cyanide or bi-chromate of potash, or either of them, or of other ingredients possessing similar chemical properties combined with animal or vegetable charcoal and ground bone, when the foregoing substances are in a state of igneous fusion, combined and operating as set forth.

WOOD SCREWS.—James M. Whiting, of New Bedford, Mass., and George F. Wilson, of Providence, R. I.: We claim the making of wood screws with the upper side of the thread of greater depth than the under side of the thread, substantially as described.

ROTARY CUTTERS FOR TONGUEING AND GROOVING.—James A. Woodbury, of Winchester, Mass.: I claim the combination of the chisel cutter or cutters, with the lip cutter or cutters, substantially as described.

MILLS.—Joel Woodward, of Philadelphia, Pa.: I claim, first, the mode of the bush on the plate, A, A, running up inside of the balance syne, C, C, in the manner and for the purposes set forth.

Second, And the mode of the lower stone, K, K, working on a loose or balance syne, C, C, that has a nut or breaker, v, v, resting on or fastened to the top of it, and may work with or without a balance or upper bearing as set forth.

Third, And the manner of the inside pot or teeth, Q, Q, made to raise and lower to open and close the aperture, r, r, by means of the lever, W, (or screw) to raise and the feed of the stones, and grinding of the crusher or breaker in the manner and for the purpose set forth.

SEED DRILLS.—George S. Ball, (assignor to Benjamin Kuhns) of Dayton, Ohio: I do not claim the upper or lower slide, such having been used before.

But I claim the slide, A, with the attachment of the clips, C, in combination with the slides, D and E, the whole being arranged and operated in the manner and for the purposes set forth.

CORN SHELLERS.—Peter Bergen, (assignor to Jane Ann Bergen), of New York City: I claim the combination of the delivery flap or bottom, n, of the hopper, the cradle, p, the pins, m, on the shelling cylinder, the several springs, and the several parts so constructed and relatively arranged as described, to operate in the manner and for the purposes set forth.

RAILROAD CAR WHEELS.—Henry C. Bulkley, (assignor to James M. Ross), of Springfield, Mass.: I claim, first, my mode of constructing the hub, viz. by reducing the iron around the outer periphery of the hub, and giving the requisite strength, I substitute a flange or ring on the end of the hub, when used in combination with a railroad car wheel of one or more plates for the purpose substantially as described.

Second, I claim increasing the thickness of the disk as it recedes from the hub to the tread of the wheel in the manner and for the purposes described.

PRESSES.—Simon Ingersoll (assignor to himself, S. B. Turner and George W. Kimball), of Brooklyn, N. Y.: I am aware that levers of the kind used by me have been used before in various ways, and therefore disclaim them in and of themselves considered.

But I claim the levers, g, h, h, chain, I, shieve, J, when arranged on the beams, E, K, in the manner shown and for the purpose set forth.

MANUFACTURE OF HOES.—J. Knight, of Newark, N. J.: I am aware that a wrought iron plate has been applied in the form of a cap, to assist in the union of the steel blade, and malleable cast iron eye of a hoe by the welding process, and therefore I do not claim the iron edge of a hoe uniting plate when not interposed between the steel blade and malleable cast iron eye; and I do not claim the lapping of the margin of the wrought iron plate over the edges of the flanch of the eye.

But I claim the welding of a wrought iron plate between the steel blade and the malleable cast iron eye, substantially as and for the purpose set forth: or in other words, I claim the hoe constructed of the three pieces, A, B and C, arranged relatively to each other, and welded together substantially as specified.

STEERING APPARATUS.—Isaac Moore, (assignor to himself and Francis N. Gove), of Brooklyn, N. Y.: I do not limit myself to the relative sizes of the gears, e and f, nor to the exact arrangement of the screws and nuts, as all these parts are well known and might be varied to suit particular circumstances. And I do not claim a rudder motion between the steering wheel and rudder head as this has before been allowed by means of springs and by ropes of a slightly yielding nature, but I am not aware of any previous instance in which the screws acting on the rudder head have been allowed an endwise motion resisted by springs or equivalent yielding pressure as and for the purposes specified.

Therefore what I claim is the manner described of relieving the rudder stock of any sudden strain or concussion by the endwise motion allowed to the screws, x, x, in combination with the springs, I, I, or equivalent yielding pressure as and for the purposes specified.

HAND EXERCISER FOR MUSICIANS.—Jules Monestier, of St. Denis, near Paris, France, (assignor to R. F. Spangenberg, of Brooklyn, N. Y.) Patented in France, Jan 12, 1857: I do not limit myself to any particular size or weight of my "agili-main," nor to the manner of fastening the same in place, although I believe that shown to be the best.

But I claim the manner described of giving agility and suppleness to the fingers and wrists of musicians by the exercise induced by the application of my "agili-main," substantially as and for the purposes specified.

PERMUTATION LOCK.—John H. Morse, (assignor to himself and Lester Patee), of Peoria, Ill.: I do not claim the arrangement by which a change of combination or mental key is produced.

Neither do I claim the arrangement for finding the combination in case it should be lost in making a change.

But I claim the "blind," or shallow slots, i, i, or their equivalents, in the circular plates, B, B, made and arranged so as to receive the points of projections, E, E, on the bar, A, acting in the manner and for the purpose specified.

MACHINES FOR BURNING WOOL.—Thomas Musgrave, of Leeds, (assignor to Anna Musgrave, of Northampton, Mass.): I do not claim the construction of the burring cylinder, or strippers or beaters, nor the combination of beaters or strippers with a burring cylinder.

But I claim the combination of the second burring cylinder and its beaters, substantially as described, with the first burring cylinder and its beaters, substantially as described, by means of an interposed stripper, or an equivalent therefor, as described.

METHOD OF ATTACHING THE PLUMB LINE TO A PLUMB AND LEVEL INDICATOR.—John L. Rowe, (assignor to Frederick Stevens), of New York City: I do not claim the employment of two spirit levels.

Nor do I claim the employment of a pivoted pointer to indicate the plumb.

But I claim the attachment to a plumb level indicator, made substantially as described, of the reel, E, and cord, H, as and for the purposes set forth.

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

SEED PLANTERS.—Samuel Thompson, (assignor to himself and A. W. Taggart), of Hopedale, Ohio: I do not claim separately the reciprocating slides, F, for distributing the seed, for they are a well known device and in common use.

But I claim the cutters, D, attached to the wheel, C, of the framing, A, in combination with the seed distributing slides, F, operated by the cams, e, attached to the cutter wheels, C, substantially as and for the purpose set forth.

[This invention consists in having a series of cutters attached to the periphery of wheels, which are placed in a framing and combined with reciprocating seed slides in such a way that the cutters will form holes in the sod to receive the seed dropped by the action of the slides. The framing being also provided with adjustable supplementary wheels, whereby the cutter wheel, may, when necessary, be raised above the surface of the ground, and the machine readily transferred from place to place. This invention is designed to plant seed in newly broken prairie or similar soil, and to overcome the difficulty attending the planting of seed in soil having a tough sod upon its surface.]

LIGHTNING CONDUCTORS.—Oren White, (assignor to Henry C. James), of Racine, Wis.: I claim, first, a lightning conductor consisting of iron wires encased in sheet copper, for the purpose of increasing the strength and the conducting power of the rod, without materially lessening its flexibility, or greatly increasing the expense of manufacture, as set forth.

Second, The sheet metal joint or clutch for connecting additional rods or points to the main rod, as described.

TIRES OF CARRIAGE WHEELS.—James M. Whiting, of New Bedford, Mass., (assignor to himself, George F. Wilson, and Alfred Anthony, of Providence, R. I.): I claim the making of the hub an elastic compound cylindrical lever, each end of which rests for a fulcrum on vulcanized india rubber or gutta percha, or other elastic substance, in combination with the coupling nut, by which the pressure thereon may be regulated.

I also claim the grooves in the body of the hub, or their equivalent, and the projections on the outside of the box, or their equivalent, in combination with the said elastic substance.

COTTON PRESSES.—Henry Shrader, of Burnsville, Ala.: I do not claim the use of racks, as they have been heretofore used, neither do I claim the toggle joints.

But I claim the construction and combination of the double racks with the toggle joints as above described for the purpose explained, and in the manner as set forth.

I also claim the hinge connecting the lower ends of the toggle levers with the follower in combination with the operation of the levers as described by which both followers are operated in the same time and with the same application of power.

RE-ISSUES.

RAILROAD CAR WHEELS.—W. B. Treadwell, of Albany, N. Y. Patented Jan. 9, 1844: I claim, in railroad wheels to be cast in one piece with a chilled rim, the forming of such wheels with a hollow concentric annulus or ring, the plates forming a curve substantially as specified to yield by bending to the unequal contraction, in combination with the connection thereof with the rim at or near the middle of its width by means of the solid ring, substantially as described, to give the required support to that part of the rim which is most exposed to fracture in use, as set forth.

And I also claim, in combination with the hollow annulus or ring connected with the rim by a solid ring substantially as described, the inner hollow annulus or ring next to and connected with the hub substantially as described, and connected with another hollow annulus or ring by a solid ring, substantially as described, whereby ample provision for yielding to the unequal contraction is obtained, while at the same time the metal composing the wheel is so disposed as to prevent in a great measure the injurious effects of vibrations, and to resist the jars and concussions to which railroad wheels are exposed in use.

ADDITIONAL IMPROVEMENTS.

HANGING CARRIAGE BOXES.—J. M. Jones, of Palmyra, N. Y. Patented July 22, 1851: I claim the combination and arrangement of the disk, or fifth wheel, D, attached to the front axle, the embracing circularly flanged annular disk, with its laterally projecting arms or trunnions to which are attached the bars or spring levers, K, so as to preserve the horizontal position of the fifth wheel while allowing the necessary play of the said bars, in the manner described.

AUTOMATIC RAILROAD CAR BRAKE.—W. R. Jackson, of Baltimore, Md. Patented Sept. 8, 1857: I claim the arrangement of parts described, or its equivalent, for the simultaneous compression of the forward and rear springs, and the consequent operation of the brakes, the same consisting in the combination of the lever, L, with the slide bar, B, and pushing rods, D, D, constructed, arranged, and operated substantially in the manner specified.

To Raise Potatoes.

A correspondent—Wm. Aldridge, of Goreland, Ind.—writing to the *Prairie Farmer*, states that having noticed how potatoes were interrupted in their growth, and invariably pined away and died if disturbed and bruised when wet with dew or rain, he selected a patch of a potato field, the whole of which was good soil and in good order to try an experiment. This patch he only plowed once, and then loosened the soil with the hoe when the vines were above ground, and in the heat of the day when they were perfectly dry. He never touched them afterward until they were dug in October last year. These vines kept green throughout the season, and the yield of potatoes was very large. The other portion of this same potato field was purposely worked three times, when the vines were wet with dew. These blighted early, did not produce half a crop, and the potatoes were of a very inferior quality. The ground, seed, and time of planting in both patches were the same.

At this season of the year, the foregoing may be very useful information to many of our farmers, who do not generally pay the least attention in cultivating their potatoes as to whether they are wet or dry.

How to Cool Water.

If it is desired to cool water for drinking in warm weather, and ice cannot be obtained for this purpose, let it be kept in an unglazed earthenware pitcher wrapt around with two or three folds of coarse cotton cloth kept constantly wet. The theory of cooling water in this manner is the absorption of heat from it, by the evaporation of the moisture in the cotton cloth—expansion produces cold, compression heat.

Recent Patented Improvements.

The following inventions have been patented this week, as will be found by referring to our List of Claims:—

IMPROVED PRINTING PRESS.—G. W. Davis, of Seneca Falls, N. Y., has invented an improved printing press, the improvement in which consists in the employment of a swinging platen, adjustable spring frisket, inking device, and a reciprocating bed, arranged so that the several parts are, by the most simple means, operated conjointly by the movement of a single lever. The improvement is intended chiefly for hand presses.

GALVANIC BATTERIES.—By the application of covers of non-conducting material through which the binding screws pass, and protecting the binding screws by means of washers from the action of the acids, the inventor, G. Doyle, of Ottawa, Ill., has produced a battery which is free from the common objection of local action between the jars, and the corrosion of the binding screws is prevented.

MACHINE FOR SHELLING PEAS.—This invention consists in the employment of rollers in connection with a series of endless cords, arranged and used with or without a vibrating hopper, so that the peas may be shelled and separated from their pods with the greatest facility. W. J. Stevenson, of New York, is the inventor. An engraving of this invention will soon appear in our columns.

BRICK MACHINE.—This is an improved machine for molding bricks, and is designed chiefly for manual operation. The object of the invention is to obtain a simple device, that cannot readily get out of repair, and one that may be easily manipulated with but a small expenditure of power. J. L. Ransom, of Charleston, S. C., is the inventor.

COMPENSATING REGULATORS FOR WATCHES.—Dana Bickford, of Westerly, R. I., has invented an improved regulator for watches, which affords great facility for connecting the compensation, as the effective length of the curb is varied, without shifting the curb pins on the hair spring. When the compensation is insufficient, it is corrected by simply tightening a set screw furthest from the curb pins; and when it is too great, it is corrected by tightening a set screw nearer to the curb pins; in either case loosening the screw which previously held the curb, so that the curb may be left perfectly free to expand or contract.

RAILROAD BRAKE.—This invention consists in introducing small adjustable auxiliary wheels between the main wheels of the truck, so that when the train is passing around curves, those wheels which are in line with the inward or shortest curve of the track may be suspended above the rails, while the small wheels rest on the rails and perform the office of the large wheels in such a manner, owing to their decreased diameter, as to allow the main wheels of the outward or longest curve to run over a greater length of space in a given time than the small wheels travel over—thus compensating for the difference in the length of the inner and outer curves of the track. This arrangement of small wheels allows of all the large wheels being suspended, and the speed of the whole train reduced to a mere fraction in a few moments, without danger of one car crowding upon another. It is the invention of John C. Fr. Salomon, of Baltimore, Md. Mr. S. patents, in connection with the above, an improved style of brake peculiarly adapted for his invention. We regard this as one of the good improvements of the age.

IMPROVED DIVING BELL.—The principal object of this invention is to establish a communication between the interior of a diving bell and the surface of the water, so that the divers may be permitted to come out of the bell and above the surface of the water at their own pleasure, without the tedious and laborious operation of raising the bell.—This object is attained by providing the diving bell with a tube or hollow trunk, of sufficient length to extend from the body or working chamber of the bell to above the surface of the water, and of sufficient size for a man to pass through, the trunk being provided with a man-hole valve at or near its junction with the working chamber of the bell, and another further up, so that by opening only one of these valves at a time, the descent into, and the ascent from, the working chamber can be effected with a very little loss of compressed air from the bell. Benjamin Maillefert, of Astoria, N. Y., is the inventor.

LUBRICATOR.—W. Clough, of Madison, Ind., has invented an improved lubricator for railroad axles, which consists in a hand attached to a sleeve, or hub, which is fitted to work on a spindle within the oil box, and which has also attached to it a slotted jointed arm. This arm is connected with an eccentric wrist at the end of the axle, the said arm, hand, and sleeve being so arranged that, by the rotary motion of the wrist with the axle, the hand is caused to receive a swinging motion, which alternately dips into the oil in the oil box, to take up a small quantity of oil or grease, and lift it up into contact with the journal, and to deposit the oil so taken up, or a portion of it, upon the journal. The invention also consists in making the slotted arm, sleeve, and hand of a single piece of wire, in such a manner that the sleeve constitutes a spring, which enables the hand to rest for an instant against the journal to insure the deposit of oil thereon, and serves to obviate any liability to breakage of the arm or hand, by the concussions produced by their very rapid motion.

TUBULAR WROUGHT IRON AXLES AND SHAFTS.—This invention consists in the manufacture of tubular wrought iron bars for axles, shafting, or other purposes, from a solid pile, by means of rolls, with a system of grooves properly constructed, by which every portion of the iron is subjected to the same degree of drawing and compression, and the bars are rendered much more sound, and of more uniform texture than tubular bars, produced by making a faggot of a number of segments arranged together, with a central opening between them, and then welding and drawing them between rolls. This last is, we believe, the only method heretofore practiced of making tubular wrought iron axles, &c., and which method, owing to all the drawing effected by means of rolls, being on the outside, with no resistance on the inside of the tube, tends to open the grain of the iron instead of closing it. It is the invention of E. W. Stephens and Richard Jenkins, of Covington, Ky.

GAS APPARATUS.—John G. Hock, of Newark, N. J., has invented some improvements in the manufacture of illuminating gas, particularly designed for small gas-works for dwelling houses and public buildings, though they are wholly or in part applicable to gas-works on a larger scale. One improvement consists in certain provisions for vaporizing the tar from coal or other gas, and returning it in a state of vapor to the retort, to be decomposed and converted into gas, which improvement is also applicable to rosin oil or other substances in a liquid state, or capable of liquefaction by heat previous to its introduction to the body of the retort, to be decomposed or converted into gas. Another improvement consists in a certain construction of the condenser, whereby provision is made for varying the surface of pipe exposed to the cooling influence of the atmosphere. And a third improvement consists in a certain mode of providing for a constant supply of water to the channel, by which the sealing of the cover of the lime purifier is effected.