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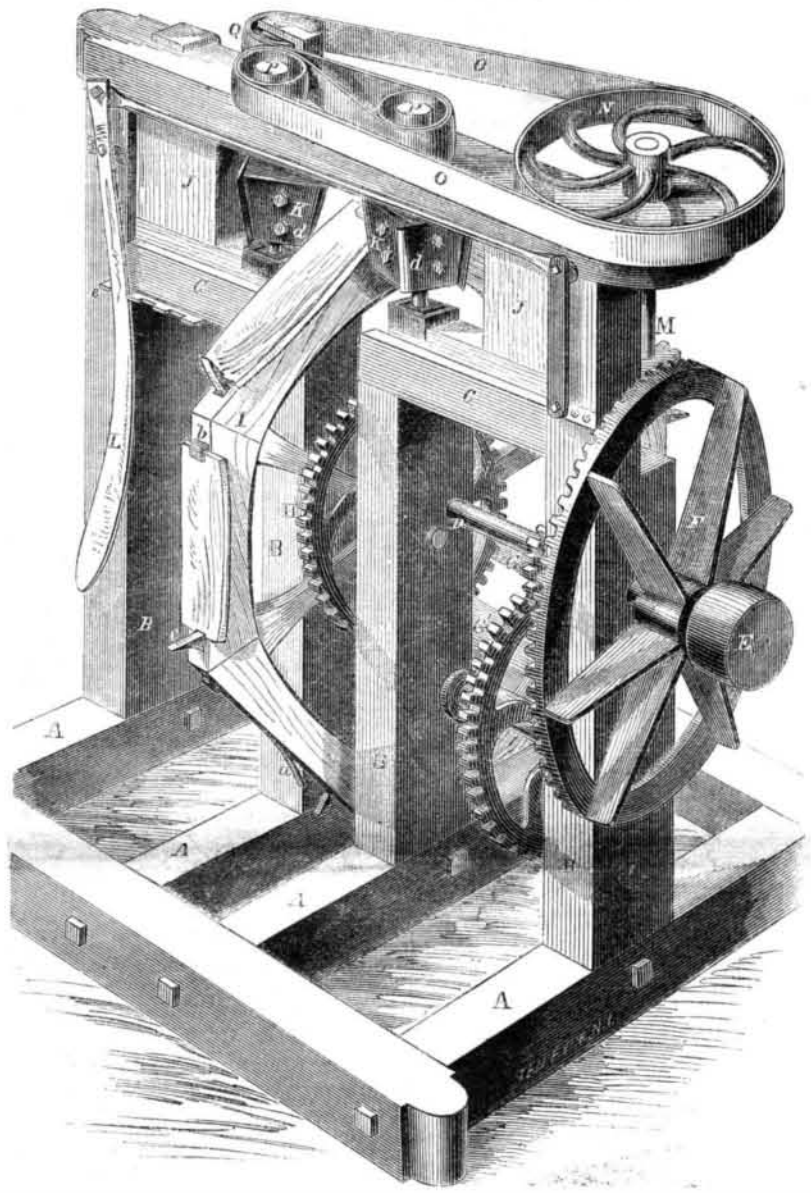
Ice Phenomena Explained.

We have received a letter from Mr. J. W. Norcross, of South Bay, Oneida Lake, N. Y., in reference to the ice phenomena described on page 177, present volume of the SCIENTIFIC AMERICAN, as having been witnessed on Rice Lake, C. W., by Mr. Dumble. We have not space for the entire communication of our correspondent, but will endeavor to present its substance. He has had excellent opportunities during this changeable winter for observing the effects of varying temperatures upon the ice. He anchored a small steamboat in Oneida Lake, and when the water had frozen to about four inches in thickness, a deep fissure appeared passing near and in direct line with the boat, extending for several miles. This fissure has been examined daily, and has formed a perfect indicator of the ice movements. Soon after the lake was frozen over, there came a thaw, and the ice moved two feet by expansion—about ten times more in amount than that of any contraction which has taken place. Contraction has always been sudden, almost instantaneously, and has usually taken place very soon after the surface water began freezing; whenever the whole surface of the water was frozen, contraction ceased. Expansion of the ice has always been slow, and has continued as long as the thermometer stood above the freezing point. Expansion never has taken place except when there was surface water exposed; none has taken place on Oneida Lake by the simple heat of the sun, when the atmosphere was below freezing temperature. Mr. Dumble, in his observations, appears to attribute such phenomena to wrong causes. The following are those which produce such effects, according to the observations of Captain Norcross:—

"The water in freezing leaves innumerable vertical seams in the ice. When it commences thawing, these open, the water enters them, and from their inclined shape it acts upon the entire ice like so many wedges to thrust the whole apart, thus causing the great and gradual expansion. The very reverse phenomena should take place in freezing, as these seams are widest at the top; hence as a consequence, when the water commences freezing, the contraction is sudden, and of less extent. When the ice grows very thick—to about two feet in depth—it becomes more compact; all the seams cement together, and the whole phenomena of the ice movements cease."

The permanganate of potash dissolved in water, at the rate of one drachm to the pint, is stated to be a wonderful soothing agent for burns and scalds.

HALDERMAN'S STAVE-JOINTER.



The want of a simple, cheap, and efficient stave-jointer has long been felt, especially for flour barrels, where a perfect joint is of great importance, as it not only protects the contents from injury, but adds to the strength of the barrel.

Our illustration shows a stave-jointing machine that, when run at the required speed, will make an excellent joint, suitable for "tight work" or "loose." It makes the bilge uniform, and the staves of equal width at both ends; and they are thrown off as quick as finished by a simple automatic arrangement.

A is a horizontal framing, having uprights, B, attached to it, and connected by cross-ties, C. D is a shaft, having its bearings in B, and carrying a driving pulley, E, bevel wheel, F, and spur wheel, G. This spur wheel, G, drives another, G′, which, in its turn, by gearing, H, gives motion to the polygonal wheel, I. This polygonal wheel is mounted between the uprights, B B, so that it is free to rotate between them. On each surface of I a spring, *a*, clamp, *b*, and spring clamp, *c*, are secured, to hold the stave while being jointed. On the top of the cross-ties, C, slides, J, are placed, carrying the cutters, K, according to the inclination of the bits, *d*, on which the "bilge" will be regulated. These cutters can be brought nearer together or moved further apart by the lever handle, L, and toggles, secured to the slides, the handle being secured in any position by a rack, *e*. The cutters are rotated from the bevel wheel, F, by a vertical shaft, M, carrying a band wheel, N, the band, O, of which, passes around pulleys, P P, on the shafts of the cutters, K, and round a compensating pulley, Q, to keep the band properly "taut" at whatever distance the cutters may be placed from each other.

The operation is as follows:—Power being applied to E, the cutter-heads are rotated by F, and the means just described. The wheel, G′, is also rotated comparatively slowly from D by G, and G′ again rotates H and I still more slowly by a small gear wheel (not seen in the illustration), the relative size of the pulleys being such as to insure a proper slow movement of I. The staves being placed on I, they are caused to pass between the cutters. The ends being the highest, have, of course, more cut away, and the centers being the lowest, have the least, on account of the inclination of the cutters and the difference of the distance between the center of each surface of I and its center and the ends of each surface. This forms the bilge. The action may be simply described thus:—When the stave first comes between the cutters it is cut away to form the end of the stave, and as it passes through them, it gradually descends until it arrives at the center; it then gradually ascends to the same point on the cutter as the other end, and so is cut equally. When cut, a spring on the side of the machine (not seen) catches and holds back *c*, releasing the stave, and the spring, *a*, throws it off. Staves can be jointed by this machine as fast as they can be put on the wheel, I, by an attendant. A foot lever may be substituted for L, if desired.

The inventor is W. Halderman, of Freeport, Ill., and he will be happy to correspond with any parties wishing further information. The patent is dated Oct. 19, 1858.

District Telegraphs.

A company has been formed in London for the purpose of providing the citizens with the means of telegraph communication as a substitute for post-carriers. The city is to be divided into eleven districts, each containing one hundred stations, so as to ensure the delivery of any dispatch in a very few minutes in any part of the metropolis. Messages of ten words are to be sent any distance within four miles for about eight cents. In our opinion the telegraph has not yet fulfilled its true mission, and it never will do so until it is rendered so perfect and economical in its operations as to be a substitute for the letter-carrier to an extent not yet dreamed of by its promotors. This London telegraph company is moving on the right track to secure this end, but we think New York once had some some such system at work, which dropped through.

Omnibus Cleanliness.

In Paris the doors have been removed from the omnibuses, to the great benefit of passengers, who thereby obtain an abundance of fresh air—something which they were unable to do before. This kind of vehicles are generally very close and confined, and doors are more of an incumbrance than a benefit. The floors of Paris omnibuses are never covered with straw or matting, but wooden slats or rails, with spaces of about half an inch between them. These act as a scraper for the passenger's feet, and the dirt falls on the floor below, which is inclined. The jolting of the omnibus makes this dirt run to the back end, where it falls out by gutters on the street, and thus the floor is always kept in a clean condition.

Concrete Floors.

The lower floors of all the cellars of houses should be composed of a bed of concrete about three inches thick. This would tend to render them dry, and more healthy, and at the same time prevent rats from burrowing under the walls from the outside, and coming up under the floors—the method pursued by these vermin where houses are erected on a sandy soil. This concrete should be made of washed gravel and hydraulic cement. Common mortar mixed with pounded brick and washed gravel, makes a concrete for floors nearly as good as that formed with hydraulic cement. Such floors become very hard, and are much cheaper than those of brick or flagstones.

New Electric Conductor.

The power of straw as a conductor of electricity has been utilized in the south of France, no less than eighteen communes in the neighborhood of Tarbes having been provided with conductors composed of straw. Experiments show that an electrical shock sufficiently powerful to kill an ox may be discharged by a single straw.

Patent Claims

Issued from the United States Patent Office

FOR THE WEEK ENDING MARCH 1, 1859.

Reported officially for the Scientific American.]

*** Circulars 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.

ROTARY ENGINES—Abraham Andrews, of Bernville, Pa.: I am aware that plungers and revolving steam pistons have been made and used, but I do not claim either of them.

First, I claim the mortised valve, I, and its connection with the rod, K, as operated by the cam wheel, L, in combination with the said axle or shaft.

Second, I claim the arrangement of the plungers, P, with their side rollers, S, and cam wheels, U, in combination with the axle or shaft, B, substantially as described for the purpose set forth.

BRICK MOLDS—Joel W. Andrews, of Norristown, Pa.: I do not claim the combination of two or more molds for bricks in one frame.

But I claim the arrangement of the pivoted handles, D D, links, H H, and bars, F F, connected to movable bottoms, C C, all substantially in the manner and for the purpose set forth.

INVALID'S TABLE—Jonathan M. Allen, of Worcester, Mass.: I claim the combination, in the construction of a table for invalids as set forth, of the revolving table bed or leaf with the column, made adjustable, and capable of being fastened in position substantially as described, the whole constituting a new and useful article of manufacture.

SEED-PLANTERS—John C. Baker, of Mechanicsburgh, Ohio: I claim the arrangement of the wheels, E and C, cams, k l, lever, L, friction roller, n, and disk, a, the whole being constructed as and for the purposes set forth.

MACHINE FOR CROSS-CUT SAWING—Joseph Battin, of Newark, N. J.: I claim the driving pulley, c, of the saw mandrel, in connection with the pulleys, f f', one or both, placed in the carriage, B, and the driving belt, H, the parts being combined and arranged to operate substantially as and for the purpose set forth.

[This improvement relates to that class of sawing machines which are designed for cross-cut sawing. The invention consists in a novel way of applying a driving belt to the saw mandrel, whereby the saw as it rotates may be fed to its work and also gigged back, the saw mandrel being under an equal tension of the belt at all points of the movement of the carriage.]

SEED-PLANTERS—J. C. Benthall, of Oakland, Texas: I claim the arrangement of the rock-shaft, K, connecting rod, J, arm, h, spring, i, and pendant, M, substantially as shown and described, for the purpose of enabling the seed-distributing device to be actuated by the leg of the operator.

[This invention consists in a novel way of arranging the driving or operating parts of a seed-distributing device, whereby the device may be attached to the leg of the attendant, and operated by the natural movement of the attendant while walking along behind the machine.]

AMALGAMATING RIFFLES—J. S. Briggs, of Michigan Bluffs, Cal.: I claim the cup punch, as constructed for saturating wood with quicksilver.

HARNESS ATTACHMENT FOR SUPPORTING DRIVING LINES—T. D. Brown, of Montville, Ohio: I claim as a new article of manufacture an attachment or line-supporter, to be placed on a horse's rump, by securing it to the harness in the manner shown, or in any equivalent way, said attachment consisting of the adjustable strap, A, pin and clasp, B and C, cross piece, D, adjustable standard, F, and arms, G G, the whole arranged and combined as described, and for the purpose set forth.

TRAM-STAFFS FOR FACING MILLSTONES—Thomas Brown, of Kenwood, N. Y.: I claim the arrangement and combination of the supporting ring, A, arranged to rest or lie on the face of the stone with the triangular frame, G, and adjustable staff, M, by which millstones may be faced more accurately and with greater facility, either plain or with suitable concavity or bosom.

HARVESTERS—Charles Brownlich, of Buffalo, N. Y.: I claim the pivoted shoe, E, constructed as described, and connected to the rear end of the frame of the machine by means of the bolt, f, upon which it oscillates, in combination with the levers, g h i, as arranged for the purpose set forth.

CORN HARVESTERS—J. L. Chapman, of Kinmandy, Ill.: I claim, first, The combination with a corn harvester frame, having V-shaped conductors, B, of sickle-shaped revolving cutters, F, partially serrated and partially plain-edged stationary cutters, E, upper and lower horizontal spring guides, C C and D D, and endless apron, J, all arranged and operating substantially as and for purpose set forth.

Second, The partially serrated and partially plain-edged stationary cutters, E, of the form described and shown, in combination with the rotary cutters, F, substantially as and for the purposes set forth.

HARVESTERS—George E. Chenoweth, of Baltimore, Md.: I do not claim a rectangular four-sided step or standard, whether oblong or square, for such have been used before, though without any view to the object sought by my invention.

But I claim a polygonal step having more than four sides, in combination with a standard or post, the lower of which corresponds in figure with the interior of said step, as and for the purpose described.

BEE HIVES—George H. Clarke, of East Washington, N. H.: I do not now claim the hollow bars, D, for the same was secured to me by Letters Patent January 8th, 1856.

But I claim the construction and arrangement of the bars, B B, the same consisting in making each of them with a salient, angular, or sharp or nearly sharp, lower edge or surface, extending lengthwise of it and downward from it, substantially as described and represented, the several bars being arranged at convenient distances for the bees to pass between them or upward into the chambers, A A, as described.

ROTARY SHINGLE MACHINE—Anson Alcott, of Lakeport, N. Y.: I make no claim to any of the parts of the machine, separately considered.

But I claim the combination of guides, c c', springs, d d', connected therewith, slide, e, reciprocated from the movement of the cutter wheel, and the shingle cutter, K, the whole constructed, arranged and operating substantially as described.

SPICE AND COFFEE MILLS—Charles R. Edwards, of Suspension Bridge, N. Y.: I claim the burr, b b, provided with the flame, a a, and handle, cast in one piece, in connection with the concave grinder, having the axle, D, cast upon the same, arranged and constructed substantially as and for the purposes set forth.

HEMMING GUIDES FOR SEWING MACHINES—William Clemmons, of Nicholasville, Ky.: I make no claim to the general construction of the hemmer, or any portion of the devices for forming and turning over the hem.

Neither do I claim forming a recess in its under side to relieve the teeth of the feeder, as this has already been done.

I claim the combination with the hemming attachment of the spring, E, placed in the groove under the pressure pad substantially as described, for the purpose set forth.

SAUSAGE-STUFFER—Henry L. DeZeng, of Geneva, N. Y.: I claim the construction and arrangement of the parts, A D F, substantially in the manner and for the purpose set forth.

WASHING MACHINE—L. A. Dole, of Salem, Ohio: I claim first, The arrangement of two winged rollers with a flexible adjustable apron clothes bed in the particular manner specified, for the purpose set forth.

Second, The use of a flexible apron clothes bed, when made adjustable, substantially as and for the purposes set forth.

Third, The use of an adjustable swinging self-opening and self-closing rubber or leather packed valve or partition, in combination with the adjustable flexible apron bed, substantially as and for the purposes set forth.

SEEDING MACHINE—Carloss and Darwin E. Eggleston, of Beloit, Wis.: We claim first, The arrangement, in the manner and for the purposes described, of the rotating shaft, B, in two or more parts, driving pulleys, d, pulley encasement E, seed pockets, D, stationary perforated bottom piece, a, adjustable slide, F, and cut-offs, h.

Second, In combination with the above I also claim the shipper, G, and adjustable slide bar or gage, g, when the shipper is pivoted to the gage to operate as specified, for the purpose described.

MACHINE FOR BLOWING UNIFORM CURRENTS OF AIR—Jonathan Griffin, of Harpersfield, N. Y.: I claim first, Operating the feeders, F F, alternately by means of the cross arms, E E, with the rollers traversing the curvilinear elevating ways, G G, substantially as set forth.

Second, Regulating the quantity of air admitted into the air chamber, H, according to the quantity required by means of the check wire, f, and sliding arm or brake, h, operating on the balance wheel, K, arranged substantially as described.

Third, Connecting the top and bottom of the air chamber, H, by means of india rubber straps, or other springs, when used in combination with the mechanism for driving the feeders, as described, to overcome and stop the operation of the motive power when the chamber is ful, and thereby steady the current of air, and prevent too great strain on the chamber.

LAMPS—Elias J. Hale and Charles H. Chandler, of Foxcroft, Maine: We do not claim a wick-holder operated by a rack and pinion, and serving to hold or carry a wick, as shown in the United States patent No. 14,248.

But we claim our improved rack wick-holder as constructed and applied to the wick and the spur wheel, so that the teeth of the latter may pass through the rack, and act on both the rack and the wick at one and the same time.

Second, The flange or collar, J, for the purpose of equalizing the aerial current as it strikes the flame of the wick.

APPLICATIONS FOR RESTORING THE HAIR—Beverly Harris, of New Orleans, La.: I do not claim the use of castor oil, bay rum, alcohol, or quinine for hair tonics, as I am aware these ingredients have heretofore been used for this purpose.

But I claim the use of bitter apple and gunpowder in combination with the before stated ingredients, when used in substantially the same proportion as set forth, and for the purpose of hair tonics, as described.

REVOLVING FIREARMS—William C. Haynes, of Melrose, Texas: I claim combining with a stationary barrel having several tubes or chambers for shot, a rotating cylinder, having groups of chambers, each group of chambers being so arranged as to correspond with the chambers or tubes in the barrel, and also so arranged in connection with a single cone, or its equivalent, to each group, that the explosion of the cap, or its equivalent, shall fire the whole group to which the cone upon which it was exploded belongs, the whole being constructed and operating substantially as set forth.

MANUFACTURE OF TIN-FOIL—William W. Huse, of Brooklyn, N. Y.: I do not claim to have invented the manufacture of tin-foil with a filling of lead.

But I claim the production of tin-foil having but an outer casing of tin, or its alloy, covering a filling of lead, or its alloy, by the reduction by pressure of a cylindrical bolt of the latter metal or alloy, which has been previously coated by dipping with the former metal or alloy, and the repetition of the dipping at suitable stages of the reducing process, substantially as described.

[This tin-foil is made by giving an outer casing of tin, or an alloy of it, to a filling of lead, or lead alloy.]

APPARATUS FOR DISTILLING—Peter Kessler, of Belleville, Ill.: I claim the employment of the stills, B B, and cooler, Q, in combination with the vessels, E I K, as described and shown, when said vessels are arranged so as to have a tapering space, L, and an intermediate circulating passage, G a b J c, between them, substantially as and for the purposes set forth.

[The gaseous liquor is conducted from the still into a hollow cylindrical space, which is partly filled up by a conical vessel of water, so that the impurities contained in the liquor are condensed by coming in contact with the cool sides of the water vessel, and the pure liquor may be drawn off by a pipe leading to a suitable cooler, the water vessels being so arranged in the space surrounding the same that the strength of the liquor may be determined by the quantity of water contained in the vessel, whilst the impurities may be sent back to the first still by means of a faucet without pumping.]

HARVESTERS—David P. Kinyon, of Raritan, N. J.: I claim the arrangement of the frame, H, which supports the driving wheel, F, so that the adjustment of the relative position of the driving wheel and cutter is effected by the leverage of the inner frame in the manner described, for the purpose as set forth.

[By this invention the hight of the frame can be regulated, and with it the sickle or cutting device, so that grass or grain may be cut at any desired hight from the surface of the ground, without at all interfering with the driving mechanism.]

APPARATUS FOR HEATING BUILDINGS—Lewis W. Leeds, of New York City: I do not claim, broadly, the use of steam as an agent for heating water.

But I claim combining the uses of steam and water for heating buildings, by means of one or more water vessels combined with a separate steam boiler, and applied in such manner that the steam from the said boiler is employed only to heat the water in the said water vessel or vessels, and that the said water vessel or vessels constitute the heater or heaters of the air, as described.

[A notice of this improvement will be found in another column.

HORSE RAKES—F. C. Kneeland, of Hartford, Wis.: I claim the arrangement and combination of the shaft, C', pivoted within the frame, F, and provided with the treddle, G, arms, h, and bar, i, with the frame, F, when the latter is pivoted to the axle, A, all as and for the purpose shown and described.

[A revolving rake is employed in this invention, peculiarly arranged or applied to a mounted frame, whereby a very simple and efficient machine is obtained.]

FASTENING BANDS ON BALES AND PACKAGES—Hazard Knowles, of New York City: I claim the method substantially as described of fastening the ends of a metallic strap or hoop by passing each end of the strap or hoop through a slot in a metal plate, one edge of which slot is formed with a bent lip on the outer face, bending the end of the strap or hoop over and outside of such lip, and hammering or clenching down both the end of the strap and the lip, that the strap or hoop may clasped or held irrespective of the body which is to be strapped or hooped, substantially as described.

BOILER FOR GENERATING STEAM—Joseph G. E. Larned, of Brooklyn, N. Y.: First, I claim the substitution for the parallel or concentric sheets of boiler plate ordinarily used to form the fire-box of steam boilers, of a continuous row or rows of upright water tubes, set side by side, to connect the steam drum or water space above the fire with a water bottom below it, in such way as to form by themselves a water jacket; said tubes being inserted in the sheet above and below by means of necks or smaller continuations, the diameter of which is so much less than that of the tubes as to leave a sufficient thickness of metal between adjacent perforations of the sheet when the tubes are placed near enough together to answer the purpose of enclosure; expressly disclaiming, however, the use of such necks or smaller continuations, in themselves considered, or for any other purpose, or in any other arrangement than that set forth.

Second, The combination of rows of water tubes, set side by side, to enclose the furnace, with tubes arranged annularly, to give increased surface, without reference to the particular method of inserting the enclosing, or arranging the annular tubes.

Third, The method of inserting the innermost of the tubes when arranged in pairs one within the other, as described, so that they may be taken out and put back at pleasure, and without injury, by means of a screw or lock nut joint at one end, and a combined screw and expansion joint at the other.

PUMPS—Edwin Lawrence and Robert Safley, 2nd, of Waterford, N. Y.: We claim a circular reciprocating double-acting pump, that will both raise and propel water on both sides of the cylinder at one and the same time, and by the same motion of the arms or piston, substantially as set forth.

APPLE-CUTTING AND CORING MACHINE—A. F. Ledbetter, of Westminster, N. C.: I do not claim the cutter E, separately, for such device, or its equivalent, has been previously used.

But I claim the cutter, E, attached to the reciprocating frame, C, in connection with the annular opening, i, in the bench, A, and with or without the spout, g, the parts being arranged to operate as and for the purpose set forth.

[This cutter is formed of a tube, with radial knives attached, the cutter being secured to the lower end of a vertical frame or gate, which works directly over a bench in which a circular bed or support, encompassed by an annular opening, is formed, the whole being arranged so that the slices and cores are discharged separately from the machine.]

MACHINE FOR CROZING AND CHAMFERING BARRELS—Hiram Littlejohn, of Troy, N. Y.: I claim crozing and chamfering barrels, kegs, or casks, by turning the bulging cylinders of staves in upon or against suitable rests or supports, and around rotating cutters, which turn in opposite direction, and describe circles of less diameter than the inside of the ends of the cylinders of staves, the cutters and the rests being so arranged together, and one or both of them made movable, that the cylinders of staves can be conveniently applied to and removed from the rests and cutters, substantially as set forth.

HORSE RAKES—William H. Long, of Lancaster, Pa.: I claim the arrangement of lever O, shifting lever plate, N, and tooth beam, B, with axle, A, and regulating screw, L, the whole being constructed and operated as and for the purpose set forth.

PAPER MADE FROM REEDS—Henry Lowe, of Belleville, N. J.: I am aware that reed fiber has been reduced to a sort of pulp; but previous to my invention it has been found impossible, practically, to manufacture paper therefrom.

I do not claim the described process for preparing reed fiber, a patent for the same having been granted me by the United States in 1858.

Nor do I here claim the art of making reed pulp.

I do not limit myself to the described process of making reed paper, or to any other process equivalent thereto.

But I claim the use of reed fiber in making paper, said fiber being prepared from the reeds called *Arundinaria, Macrosperma* of *Michaux*, and employed in the manufacture of paper, substantially as set forth.

PUMPS—John M. Lunquest, of Griffin, Ga.: I claim the arrangement of cylinders, B B B B, piston heads, C C C C, ball valves, a a a a, air chamber, F, and valves, a' a' a' a', said valves being kept in position by proximity to each other and the sides of the chamber, F, substantially in the manner and for the purpose specified.

CROSSING FOR RAILROADS—Samuel Macferran and Stricland Kneass, of Philadelphia, Pa: We wish it to be understood that we do not claim, broadly, the application of inclined surfaces on railroads for receiving the flanges of the car wheels.

But we claim the employment of inclined surfaces at the point where two rails intersect each other, when the said surfaces are arranged in respect to the intersecting rails, substantially as and for the purpose set forth.

CARRIAGE SPRING—Edward Maynard, of Brooklyn, N. Y.: I claim attaching the returned ends of the spring directly to each other by means of the shackle, b, substantially as and for the purpose specified.

TREATMENT OF CAOUTCHOUC—Morris Mattson, of Boston, Mass.: I do not claim any invention described in the patent of N. Hayward, dated February 24, 1839; and especially I do not claim the combination of caoutchouc and sulphur broadly.

But I claim as my new or improved india rubber composition or manufacture, as made in manner substantially as specified, without any of the oxyd of lead, but of caoutchouc, sulphur, and one or more ochers, or an earth or earths containing one or more finely-divided oxyds of iron, and employed in a quantity much greater than necessary for simply affording color to the compound, the quantity being essentially in the proportions as stated, or such as will afford the economical and useful results as explained.

ROOFING CEMENT—Oscar S. Oaks, of South Rutland, N. Y.: I claim the employment, in combination with the other substances specified, of the alkaline solution of shellac and the sulphate of baryta, the whole being compounded substantially as and in about the proportions set forth.

[This is an improved roofing compound, in which an alkaline solution of shellac is used instead of an alcoholic one; and there are many other novelties which tend to produce an excellent article.]

MOTIVE POWER—John G. Mitchell, of Collington, Md.: I claim the application of weights, A A' and B B' in connection with the shaft, C, and treddle, K, so that when disconnected from the treddle, K, the weights, A A' and B B', are in equilibrio, and subject to be moved by any agency applied to either weight at the end of the lever or arms, so as to produce motion in the machinery at the termination of the machine proper at I, arranged and operating in the manner and for the purpose described.

CONSTRUCTION OF STEAM VESSELS—James Montgomery, of New York City: I claim, first, Constructing the hulls of vessels with one or more cavities in the bottom, commencing at or near the stern, increasing in capacity sternwards, substantially as and for the purposes set forth.

Second, Constructing the bottoms of vessels with corrugations, extending from stem to stern, as set forth, which give strength to the hull, and a portion of which form the cavity or cavities referred to.

Third, The described combination an inclined screw propeller with a hull, constructed as set forth.

Fourth, Two or more rudders operating as set forth, in combination with the described longitudinal cavities in a ship's bottom.

POTATO-DIGGERS—Robert Niven, of Yates, N. Y.: I claim the combination and arrangement of the shoe or share, G, endless screen, H, and pendant or supplementary riddle, N, with the frame, A, and side plates, D, sinuous slots, C, and slotted levers, R, operating conjointly, substantially as and for the purposes set forth.

MACHINE FOR PRINTING THE ADDRESS ON NEWSPAPERS, &c.—A. H. Nordyke, of Richmond, Ind.: I claim, first, The arrangement of an endless conveyor, A, for feeding the envelopes under the forms to receive the impressions, and delivering the same after printing in combination with a driving set wheel, D, as set forth.

Second, I claim the two inclined tracks, K and L, arranged one above the other, in such manner that the forms may be carried up the inclined track, K, and delivered upon the inclined track, L, and brought by their own gravity down said track, and under the pressure rollers, N, and from thence to the point of discharge, as described.

Third, I claim the arrangement and combination of endless band, g, catch, i, and jointed track, K, for taking the forms from the end of said track, K, and delivering them upon the lower track, L, all arranged and operating as described.

GOVERNOR FOR STEAM ENGINES—G. T. Parry and H. W. Evans, of Philadelphia, Pa.: We claim one or more revolving weighted spring levers, K, in combination with the sleeve, I, and the connections described, or their equivalents, between the said sleeve and levers, when the latter are hung to pins placed at such a distance from the center round which they revolve, that the weights at the end of the levers shall move in the arc of a circle, contained within or partially within the circle described by the said pins, as set forth and for the purpose specified.

CHURN—Andrew Patterson, of Birmingham, Pa.: Disclaiming, therefore, all arrangements and devices which are not identical in principle, purpose and mode of operation with those substantially as described—

I claim the combination of the chamber, a, with the chamber, b, when said chamber, b, serves the double purpose of a lid or covering for the cream in chamber, a, and a frame for the dash wheel, driving wheel, and crank, substantially as described and set forth.

SHIPS' PROPELLER—J. K. Peters, of New York City: I claim the arrangement and combination of stops, c d, arm, A, and blade, C, (more than one blade with the stops being combined with the arm, A, when desired,) all substantially as and for the purpose shown and described.

[Mr. Peters' propeller consists of one or more blades or floats attached, each at one end or edge by a flexible joint to an arm, lever, rod, bar or frame, which has imparted to it a reciprocating motion either vertically or in a direction transverse to the length of the vessel, by which motion the blade or float is caused to receive a vibrating motion which causes them to present their opposite faces alternately to the water in a direction oblique to that of the reciprocating motion of the arm, lever, rod, bar or frame to which they are attached and to the length of the vessel, and thereby exert a pressure upon the water in such a way as to propel the vessel.]

LOCK—Daniel Powers, of Philadelphia, Pa.: I claim the independent movable expanding and contracting fence, or its equivalent, substantially as set forth.

I also claim the union of the upper and lower halves thereof, as specified.

CENTER BOARD—Noah Pratt, of Nicholson, Pa.: I claim applying the center board and appliances for operating the same in a movable box or curb which is so fitted into a well-hole, or a stationary curb built into the vessel as to be capable of being lifted out of said well-hole or curb with the center-board, and all its appliances, substantially as described.

[This invention consists in so applying a center-board as to permit it to be adjusted horizontally at an angle in either direction to a plane passing vertically and longitudinally through the center of the vessel, for the purpose of enabling a vessel to sail closer on a wind, and holding her to the wind while in stays. It further consists in providing for the taking-up of the center-board, and placing it on the deck of the vessel for repairs or similar purposes, by applying it within a movable box or curb which is fitted to a well-hole or stationary curb provided in the vessel, and which can be lifted from the well-hole with the center-board and the contrivances for operating it.]

HARVESTERS—Daniel Rauck, of Intercourse, Pa.: I claim the combination of the inclined planes, H, and springs, I, crank, K, and connecting rod, L, spindle or pivot, E, sliding rake head, R, and curved supports, B T and C, when these several parts are arranged in the manner described for the purpose specified.

PLOWS—Isaac Rulofson, of Penn Yan, N. Y.: I claim the arrangement of beam, A, standard, B, landside strip D, share E, moldboard, C, and piece H, the whole being constructed and united as and for the purpose set forth.

SCREW PROPELLER—G. E. Safford, of New York City: I claim the hub, B B, made in two disks, with spiral or inclined slots to receive the floats, when the floats are removably secured to the hub, in the manner described, and the whole being constructed substantially as and for the purpose set forth.

AUTOMATIC BELL RINGER—E. N. Scherr, of Philadelphia, Pa.: I claim the described manner of automatically producing music from bells by the employment of adjustable pins, b, in the barrel, A, actuated by clockwork or other motive power, and giving motion to the hammers, D, in any manner equivalent to that shown and described.

CONSTRUCTING WHARVES—Alexander Stephens, of Baltimore, Md.: I do not claim brace piles, nor the springing of piles into position as new or novel.

But I claim brace piles driven at a suitable angle, and having their heads so drawn back as to secure a purchase from the footing of the pile, when combined with vertical piles and capping logs, substantially as described.

SMUT MACHINE—D. P. Shaw and F. C. BROWN, of Rochester, Ind. : We do not claim a curved blast spout, K, nor do we claim separately any of the parts.

But we claim the arrangement of the blast spouts, K L, with the scouring device enclosed within the cylinder, I, and the fan-box, C, in connection with the tubes, J J, substantially as shown, whereby the grain is subjected to a continual blast during the whole of its passage through the machine, to wit, prior to its advent into the cylinder, I, while being acted upon by the scourer, and after it leaves the scourer, substantially as described.

[This invention consists in the employment of a blast spout, fan and scouring device, arranged relatively with each other, so that a very compact and efficient machine is obtained, the grain being subjected to a blast before entering the scourer, while passing through the same, and also after leaving the scourer just previous to leaving the machine.]

WASHING MACHINE—Wm. N. Slason, of South Reading, Mass. : I claim the arrangement and combination of the squeeze gratings or boards with the reciprocating dasher or washer, or rinsing chamber.

I also claim the application of the separate soap-chamber to the wash or rinsing chamber, in manner and for the purpose set forth.

I also claim the arrangement of the windlass with reference to the box, A. and brake, C, and for the purpose as specified.

WATER WHEELS—Jacob Stear, of Smicksburg, Pa. : I claim the combination of the cylinder, i, inclined ribs, k, and disk, L, with its buckets, L', the whole constructed and operating essentially as described.

HEARTH FOR WORKING AND REFINING IRON—R. D. Stewart and John Christopher, of Digonier, Pa., and Ross Forward, of Somerset, Pa. : We do not wish to be understood as claiming the steam chamber and perforated hearth described of any particular shape or dimensions as applied in the various ways set forth, but claim its application in any shape or size required for the purpose mentioned.

What we specifically claim is the steam chamber, C, and perforated hearth, B, as in the specifications and dawings described for the uses and purposes set forth.

APPARATUS FOR SLAUGHTERING HOGS—G. W. B. Story, of Carlisle, Pa. : I claim the arrangement of the vertical shafts, E Q, lever, G, and bar, R, with the vertical rotating shaft, N, and the rectangular frame, B C D and ● P, the whole being constructed as and for the purpose set forth.

MASHING—N. G. Thorn, of Dayton, Ohio : I claim, first, The perforations in the pipes, e e e, &c., attached to the hollow arms, d d d', or any analogous device, by which water, steam or air is admitted into the mash-tub, in such manner as to distribute it equally, or nearly so, to all parts of the mash.

Second, The spiral agitators, when attached to any revolving machinery for the purpose set forth.

Third, The surface agitators of whatever form when attached to revolving tubs for the purpose set forth.

Fourth, The use of a self-packing joint, applied to mash-tubs when used for the purpose set forth in whatever form it may be constructed.

Fifth, The combination of the surface agitators, with a stationary or revolving blast.

CORN PLANTERS—Amos G. Thompson and A. J. Thompson, of Belleville, Ohio : We claim the arrangement of spiral springs, a a, in combination with cross-bar, E, and straps, o o, for regulating the movement of the plungers, B B, substantially as specified.

MACHINE FOR SCOURING AND HULLING GRAIN—Jos. N. Treadwell, of Readin, Conn. : I claim, in combination with a bed-stone and runner for scouring and hulling grain, the grooves, c, and rasping plates, H I, skirting said grooves, said parts being arranged and operating together substantially as and for the purpose set forth.

SUGAR CANE MILLS—A. Van Trump, of Lancaster, Ohio ; I claim, first, The combination in a sugar cane mill of two or more intermediate small feed rollers, C C, with four or more large crushing rollers, B B, B' B', substantially as and for the purposes set forth.

SKATES—M. Vandenburg, of Newark, N. J., and F. Berry, of Owego, N. Y. : I claim, first, An elastic front to confine the foot to the skate.

Second, Rendering the foot-board adjustable to feet of various widths by constructing it in sections.

PIANOFORTES—George Vogt, of Philadelphia, Pa.: I claim the employment of the described rest and bridge, either separately or combined, when the same are constructed and operating substantially in manner and for the purpose set forth.

WATER METER—A. W. Von Schmidt, of San Francisco, Cal. : I claim combining with the propeller, B, the radial partitions or feathers, k k, and the re-acting shutes, m m, said feathers and shutes being arranged and operating as set forth.

HARVESTERS—Russel Warner, of Brattleboro', Vt. : I claim, first, The circular cutters, q, attached to bars, r, at the lower ends of rotating shafts, k, and having an independent rotating motion given them by means of the gearing, s a.

Second, The combination of the cutters, x, plates, u p, and shafts, k, with or without the sharpeners, a or c, arranged as shown to operate as and for the purpose set forth.

[Horizontal rotating cutters are used in this mower, and the machine placed in front of the team. The invention consists in a peculiar construction and arrangement of the cutting device, whereby it is made to act very efficiently, and with but a moderate application of power ; also, in a peculiar arrangement of the pole, whereby the machine can be turned with much greater ease than usual.]

HORSE RAKES—Wm. H. White, of Garrettsville, N. Y. : I claim the employment of the two levers, A C, when crossed diagonally and pivoted together at d, in combination with the turning rake head, D, frame, C, and seat, B B' substantially as and for the purposes set forth.

PLOWS—J. M. Whitney, of Bolton, Mass. : I claim the arrangement of the hinged arms, C D, adjustable brace, E, and standard, A, with the wheel, H, and plow-beam, G, the whole being constructed for operating substantially as and for the purpose described.

CULTIVATORS—J. M. Whitney, of Bolton, Mass. : I claim the arrangement of the teeth, a, adjustable mold-boards, D, frames, A A', and cross-beam, B, with the branched swivel bar, L, and frame, H, the whole being constructed as and for the purpose described.

GAGE COCK—John E. Wooten, of Philadelphia, Pa. : I claim the arrangement of the tube, A a, in combination with the cam, c, rod, F, and valve, E, for the purpose and in the manner set forth.

VALVE GEAR—A. A. Wood, of New York City : I claim the combinations of the links, D, and E E', attached to the eccentric rod, and arranged with adjusting gear, as described, or in manner equivalent.

MANUFACTURE OF STEEL—F. A. Lohage, of Unna, Prussia, assignor to E. L. Benzon of Boston, Mass. : I claim the new or improved art of manufacturing steel of any desired temper, or hardened according to the various purposes or uses for which the steel may be required, by arresting the decarbonization of the mass of metal in the furnace at certain points or stages thereof, ascertained and recognized by means of certain phenomena, or external indications manifested by the material, substantially as described.

MAKING BOLTS AND RIVETS—J. R. Bassett (assignor to himself and A. E. Bateman), of Cincinnati, Ohio : I claim the die, A A', a a, i i, g' g', f f, and k k, substantially as described for the purposes set forth.

CAST IRON FENCE POST—P. Stewart (assignor to Auchambaugh Brothers), of New Lebanon, N. Y. : I claim, as a new article of manufacture, a cast-iron fence post, constructed with flanges to protect the ends of the fence rails against being split as well as against moisture, substantially in the manner described.

PRECIPITATED SULPHUR—D. E. Paynter (assignor to himself and I. M. Bissell), of Philadelphia, Pa. : I do not claim, broadly, precipitating a boiled solution of sulphuret of calcium.

But I claim manufacturing precipitated sulphur from the ashes resulting from the combustion of gypsum and coal dust, in the manner described and for the purpose specified.

TEMPERING STEEL SPRINGS—James Jenkinson (assignor to himself and F. Mandel), of Williamsburg, N. Y. : I claim arranging the wires, c c, in such a manner that by tying one end of each of the same to one of the arms of the wheel on which the coil is formed, and by extending the ends so tied down to the hub of the wheel, the loose ends of the wire serve to fasten the several rings of the coil substantially as described.

[This is an excellent method of arranging springs for tempering, as it facilitates the process, and prevents accidents.]

MEASURING FAUCET—W. W. Hollman, of Eddyville, Ky. : I claim, first, In combination with a faucet-piece, having an induction and eduction pipe, a receiving and variable chamber, so constructed and arranged, that by partially rotating it within the said faucet-piece, the liquid will be alternately received and discharged through a port or ports, substantially as described.

Second, Making the rod, B, polygonal, when used in combination with the variable measuring chamber and its piston, substantially as described for the purposes set forth.

RE-ISSUES.

WINDOW FASTENER—C. R. Edwards, of Niagara City. Patented July 8, 1856 : I claim the employment of a single shaft, operated internally, and operating externally upon a window blind, when said shaft is made to effect the double purpose of operating both the blind and its slats, and this whether I construct and arrange the hinge and levers in the manner specified or not.

GRINDING MILL—G. Sanford, of Poughkeepsie, N.Y. Patented March 9, 1858 : I claim constructing a grinding mill with flat plates dressed on both sides, having a longitudinal reciprocating vertical and oscillating motion, in combination with flat stationary plates likewise dressed on both sides, the whole constructed and operated substantially as described.

Second, I claim the notched form of the upper edges of the plates, for the purpose of preventing the mill from choking and to facilitate the feeding of the article to be ground between the grinding surfaces.

ADDITIONAL IMPROVEMENTS.

TOOL FOR TENONING SPOKES—J. J. Croy, of Caledonia, Mo. Patented Feb. 3, 1857 : I claim, first, The adjustable gage, D, attached to the tube, A, substantially as and for the purpose set forth.

Second, The employment or use of the temper or set screws, B C, applied to the tube, A, as and for the purpose set forth.

Third, The gages, H, fitted in the bars, F F', of the clamp cutter head, all the above parts being arranged and operating as specified.

LOCKS—H. W. Covert (assignor to M. Briggs), of Rochester, N. Y. : I claim the combination of the disc, D, and centre V, toothed V, teothed or corrugated substantially as represented, for the purpose of fastening them securely together ; but I do not confine myself to any particular size, or shape, or number of teeth, nor to any particular position on the disc or center.

FLY-TRAP—William Riley, of Madison, Miss. Patented April 27, 1858 : I claim the cover or shade, a, the rim or front marked e, and the pan marked p, as described.

DESIGN.

STEREOSCOPE CASE—Alex Beckers, of New York City.

The True Source of Information.

MESSRS. EDITORS—I became a reader of the SCIENTIFIC AMERICAN in 1849, and have carefully perused every number issued since that date. I doubt not there are many others who can say this much. I can also say I am more and more pleased with it. It is invaluable to me; and I regard its influence upon the material interests of the country as superior to that of any other journal now published. I like your criticisms; they have always seemed to me to be dictated by a candid independence, and bear the impress of reliability—a feature somewhat peculiar in modern journalism. I rejoice in your success; and I commend your journal to all friends of solid progress as well worthy of their support.

* * *

Cambridge, Mass., March, 1859.

[The above compliment to the SCIENTIFIC AMERICAN is gracefully expressed, and most highly appreciated. When we assumed the management of this paper in 1846, we determined to make it a sound and reliable medium for the propagation of useful information. How far we have succeeded in our endeavors, we must leave the public to decide. The SCIENTIFIC AMERICAN is the only journal of the kind in this country which has met with any success; and since its commencement, we feel safe in asserting that at least twenty pretended rivals have been brought into existence, and expired after the issue of a few numbers. Our circulation has steadily increased from the beginning up to the present time; and we have special reason to thank our friends for their earnest exertions to aid its circulation.

We intend that the contents of our columns shall be perfectly reliable, so that our readers may know what to depend upon. If we stumble upon Hot-air or Static Pressure Engines, Paine's Gas, Fire Annihilators, or any other discoveries or inventions of doubtful utility, we shall, as heretofore, deal with them as they deserve, and invariably give scientific reasons for our position.

The columns of the SCIENTIFIC AMERICAN are at all times open to contributions from practical men upon the various industrial interests of the country. We invite such communications; and we only reserve to ourselves the right (which all editors must carefully exercise) to amend or reject them entirely, if, in our judgment, the interests of our readers will be promoted thereby.

The Preservation of, and Season to Cut, Timber.

MESSRS. EDITORS—In your paper of the 5th ult. I noticed an article and your remarks on the time to cut timber. The assertion is correct that July and August are the best months for cutting timber, according to the early or later maturity, south or north. I will endeavor to give an explanation of this: Physiologists inform us that the characteristics of sap are different at the various seasons of the year, and also that the contents of the cells of the wood and buds share in the same change, according to the seasons. Thus we learn that in the Fall, the energies of the tree are used in filling the cells and buds with starch, sugar, &c., which remain there all winter; that by the genial influences of spring these supply the material for the evolution of leaves and twigs, which grow so rapidly in the spring months; and that, with little interruption, these materials for the formation of woody fiber, leaves, and fruit, are to be found in the sap until the process for the year is completed in July or August, and nature reposes in the full glory of her perfect work.

Researches have proven (and we can easily repeat them) that at nearly every period of the year but this, starch, sugar, &c., can be extracted more or less abundantly, but that at this time neither the sap nor a decoction or infusion of the wood will afford these matters. We are also informed that fermentation is usually the first step towards decay, and that the substances I have mentioned are vastly more susceptible of fermentation than the well-ripened woody fiber; hence, if you can cut timber at a season most free from fermentable substances, you best secure its durability.

Soaking wood for a long time in running water is followed by an increase of durability, owing to the water dissolving and carrying off fermentable matters. Kyanizing or saturating with mineral ingredients of various character prevents fermentation, and thus secures the object.

This subject is one of immense importance to railroad and telegraph companies. My experience in posts is very much in favor of July cut timber from deciduous trees. I am not sure about evergreens. Q. E. D.

Roswell, Ga., March, 1859.

Gas-light Tubes.

MESSRS. EDITORS—I was pleased with a suggestion in your paper not long since in relation to the importance of some provision for the escape of the products of combustion in gas-burners. I suppose that few persons have any suspicion that it is a matter of any consequence. Can you not give some statements in regard to the nature and amount of these products? L. L. P.

Hartford, Conn., March, 1859.

[The products of gas in combustion are carbonic acid and water; and as a portion of it generally escapes without perfect combustion, it forms carbonic oxyd, which is a deadly poison. The hydrogen of the gas unites with an equal volume of oxygen, and forms water, hence we have water, carbonic acid and oxyd as the products of combustion. It requires eight cubic feet of air for the perfect combustion of one cubic foot of gas; these produce three feet of carbonic acid. A burner consuming one and a-half cubic feet per hour requires twelve feet of air, and forms four and a-half feet of carbonic acid, two per cent of which, in any atmosphere, renders it unfit for healthy respiration.—EDS.

To make Cooped Hens Lay.

MESSRS. EDITORS—It is pretty well known that hens will not lay, except occasionally, when "cooped up." It should be extensively known that a small daily allowance of raw meat of any kind will restore not only the power to the hen, but the necessity to lay every day, supposing, of course, that the other portion of the food is of the ordinary kind. No fowl lives exclusively on a vegetable diet; and when running at large, domestic fowls will be found searching for insects with great avidity. Those of your farmer readers who are not aware of this fact, may obtain a better supply of eggs by following this advice.

R. H. A.

Produce of Corn in Ancient Times.

The returns of seed sown, as mentioned by ancient authors, are very remarkable. A hundredfold, Varro informs us, was reaped about Garande, in Syria, and Bysacium, in Africa. Pliny adds, that from the last place there were sent to Augustus from his agent, nearly 400 stalks, all from one grain, and also 340 stalks. He says he has seen the soil of this field, "which when dry, the stoutest oxen cannot plow; but, after rain, I have seen it opened up by a share, drawn by a wretched ass on one side, an old woman on the other." The returns in Italy were much less extraordinary. Varro says, "There were sown on a jugerum four modi (pecks) of beans, five of wheat, six of barley, and 10 of far (maize), more or less, according as the soil is rich or poor. The produce is in some places ten after one, but in others, as in Tuscany, fifteen after one." This, in round numbers, is at the rate of 21 and 32 bushels on an English acre. On the excellent soil of Leontinum, in Sicily, the produce, according to Cicero, was no more than eight to ten for one. In Columella's time, when agriculture had declined, it was still less.

Prizes for Inventions and Discoveries.

The Society of Arts in London offers premiums in gold medals and small sums of money, for the discovery of a substitute for cotton, an incombustible paper for the books of commercial men and bankers, an economic system of railway transit applicable to common roads to connect thinly populated districts with the main lines of railroads, and the introduction of a system of railways for common roads and in the streets of towns.

This latter system is in common use in our American cities, and all that has to be done in England, is just to adopt it. In noticing the daily tumbling, jamming, and cramming of horses in our streets, we really think it would be a decided improvement in point of cleanliness and comfort, to adopt iron horses for stages, could this be done with equal safety and economy; upon humanitarian principles the change would be a most benevolent one.

THE NICARAGUA CANAL.—The mysterious Frenchman, Monsieur F. Belly, announces in the Paris journals that his organization of the Nicaragua Canal Company is completed; that the money necessary is secured; that the vessel has been freighted to carry out the engineering material, and that this vessel, with himself, some of the engineers and clerks—sixty persons in all—will sail from Havre for Greytown in three weeks. We have no doubt that this energetic personage will get his stomach full of this job before he has been in Greytown three weeks.