

**American Asphaltum.**

Under this heading, Professor S. T. Peckham, of Buchtel College, Akron, Ohio, communicates to the *American Chemist* an article in which he takes issue with several of the statements previously made by Dr. Newberry on the same subject and in the same periodical. Professor Peckham has already published several papers on this topic, and has personally examined, over a considerable period of time, the bituminous out-crops of Lower California. The latter, he states, may be roughly estimated as covering an area of 75 miles in length by from 5 to 40 miles in width, and they probably contain more asphalt than any surface of equal extent in the western hemisphere, except the Pitch Lake of Trinidad.

Bitumen occurs there of every variety, from green petroleum of the consistence of olive oil to solid asphaltum heavier than water. There are millions of tons of asphalt, some of it pure, but the largest portion contains from one to ninety-nine per cent of all sorts of impurity, chiefly soil, shale, gravel, sand, and organic matter, both animal and vegetable. The maltha passes by imperceptible degrees, from dense oil, through tar, to a mass resembling mortar in consistence and heavier than water. There are thousands of barrels of maltha and a few barrels of petroleum; but there is not a particle of asphalt or any other natural bituminous product in that region, that is a residuum from the evaporation of petroleum.

Maltha, or tar of varying density, has been obtained at from ten to four hundred and sixty feet from the surface—a depth too great to admit of the slightest action of the sun's rays. Nor could the evaporation be due to solfataric action, since, where such action was most apparent, on the south side of the sulphur mountain, were obtained the least dense and most slightly altered petroleum. Without a single exception, every outflow of bituminous material, whether natural or artificial, proved that the change from petroleum to maltha and asphaltum is due to the action of atmospheric oxygen, either direct or transmitted by rain water. The only natural springs of petroleum that I saw or heard of in that region were the Canada Laga and Pico Springs. The first issued from an almost perpendicular cut in strata overlaid by several hundred feet of shale. The second issued from shale that was overlaid by unbroken bands of sandstone and conglomerate, affording ample protection. The tunnels in which petroleum was obtained were invariably driven into the nearly perpendicular face of a cliff or mountain side, into strata that were well protected by hundreds of feet of overlying rock. Tunnels of the same length, driven on strata that were not thus protected, invariably yielded nothing but maltha or oil more or less changed. On the plains northwest of Los Angeles, an artesian boring, that penetrated sandstones interstratified with shale, yielded maltha at a depth of four hundred and sixty feet. Professor Peckham goes on to deny the fact that maltha at the bottom of wells is the result of evaporation, and cites various facts and testimony in support of his position. As regards the Canada asphalt beds, he maintains similar views and does not believe that the origin of albertite, grahamite, or any such substance, has the remotest connection with petroleum of any description, or that these asphalts bear any relation to still residues. He continues that he never saw a residue of Pennsylvania petroleum that was not coked that did not contain paraffin, or a particle of California petroleum, maltha or asphalt, or any substance distilled from them, that did contain a trace of paraffin or any other solid matter.

The distillates from California bitumens, of the same specific gravity as those from Pennsylvania oils, have a different color and odor, and cannot be burned in the same lamps without smoking. They evidently contain a larger proportion of carbon. It is needless to add that none of these substances derived from petroleum bear any relation to coal tar residue.

It is important that the relations of these substances be properly understood, and that the language of science be cleared of the obscurity in which, from the time of Boerhaave to the present, this subject has been involved. We might just as well now as ever, concludes the writer, deny the existence of maltha or mineral tar, as distinguished from petroleum, as talk about the "petroleum springs" of California and the "far west." Does it really add anything to the value of a tar spring to call it a petroleum spring, or to a hill side smeared with maltha to call it a "petroleum cascade?" Just as well call a barrel of tar "spirits of turpentine," and insist that a purchaser should take either at random.

**Waterproof Paint for Canvas.**

The following is a cheap and simple process for coating canvas for wagon tops, tents, awnings, etc. It renders it impermeable to moisture, without making it stiff and liable to break. Soft soap is to be dissolved in hot water, and a solution of sulphate of iron added. The sulphuric acid combines with the potash of the soap, and the oxide of iron is precipitated with the fatty acid as insoluble iron soap. This is washed and dried, and mixed with linseed oil. The addition of dissolved india rubber to the oil improves the paint.

**The Meteoric Shower of August 10.**

We have reports from observers at Mont Clair, N. J., who noted fourteen meteors, seen within forty-five minutes, between the hours of eight and nine in the evening of August 10. General direction of movement, from N. E. to S. W.

A correspondent at Keyport, N. J., reports the observance of brilliant meteors there on the evening of the 10th.

A correspondent at Milwaukee, Wis., reports quite a number of meteors seen on the 10th. But the largest number were seen on the evening of the 9th.

**Inventions Patented in England by Americans.**

(Compiled from the Commissioners of Patents' Journal.)  
From July 22 to July 31, 1873, inclusive.

BELL PIANOFORTE.—U. C. Hill, New York city.  
BOILER AND GOVERNOR.—G. Merrill, New York city.  
DOOR BELL.—J. B. Sargent, New Haven, Conn.  
DRYING KILN, ETC.—J. A. Locke, New York city.  
ENGINE AND PISTON.—G. Merrill, New York city.  
FILTERING PROCESS.—T. R. Sinclair, New York city.  
MECHANICAL TOY.—V. A. P. La Grove (of Brooklyn, N.Y.), London, Eng.  
PACKING WATER COLORS.—C. T. Reynolds & Co., New York city.  
PURIFYING GAS.—W. H. St. John, New York city.  
SEWING MACHINE ATTACHMENT.—H. M. Hall, Philadelphia, Pa.  
SILK SPREADING MACHINE.—J. Sault, South Manchester, Conn.

**Recent American and Foreign Patents.****Improved Sawing Machine.**

Harry M. Stow, Milan, O.—The object of this invention is so to improve the construction of the saw guide that the stroke of the saw may be rapidly changed and adapted to the requirements of the cutting operations. The increase and decrease of the stroke is produced by simple means, and easily regulated. The invention consists of lever connections, acting on the front and pitman end of the saw shaft, to be operated simultaneously or separately, as desired.

**Improved Music Leaf Turner.**

George W. White, Brooklyn, N. Y.—This invention consists in a series of leaf turning arms arranged loosely on a pivot at the top of a support adapted to rest on the book rack of a musical instrument. On said pivot is a wheel with an arm which acts against all the leaf turning arms on one side and swings them around to the side from which the leaves are to be turned, when a lever at the bottom of the support, connected with a segment gearing with said wheel, is pressed down by the player. There is another wheel on said pivot for throwing the arms in the outer direction one at a time, to turn the leaves, when a similar lever at the bottom of the stand, connected with said wheel by a toothed segment, is pressed down. This last wheel is thrown back by a spring, and the first one is turned back by the last when it throws the first arm. The invention also comprises a spring clip for the arms to clip the leaves and hold them, so as not to slip out when the arms swing, which is so constructed that it can be opened readily for engaging the leaves by pinching it between the thumb and finger.

**Improved Cake Pan.**

John B. Firth, Brooklyn, N. Y.—This invention consists of cake pans on frames, in which the pans shall be secured in place firmly and neatly, and in such a way that they can be conveniently cleaned and washed, and that they will not be liable to become loose.

**Improved Portable Fence.**

Theodore L. Wiswell, Olathe, Kansas, assignor to Ray Amasa Wiswell, of same place.—The object of this invention is to improve what is known as the "worm fence." Triangular shaped posts govern the position of the panels and the shape of the fence. These posts do not extend into the ground, but the rails are fastened to them by a single bolt or pin at each end, so that they will turn on the bolts or pins, and thus give the fence a degree of flexibility for crossing uneven ground. The panels are connected together with iron staples. Two of these staples are usually employed, one near the top and one near the bottom. Keys are driven through them, by taking out which the fence may be taken down, removed, or packed away.

**Improved Reciprocating Winnower.**

Henry Keller, Sauk Center, Minn.—The lower grading screen is made in two parts. The upper sections are elevated above the planes of the lower ones, so that the wind from the fan can act with much better effect on the grain, both for separating the oats and other light matters at the upper end of the upper sections, and the screenings at the point where they are separated. The upper section of the lower screen is made shorter than the upper section of the upper screen, to give the oats a better chance of dropping down. The lower section of the lower grading screen does not extend quite as low down as the end of the upper screen does, and delivers its grain between the partitions of the grain box and the side of the screen box. The upper screen delivers its grain on the other side of partition which separates the grain box from the fan chamber.

**Improved Ewener for Thread.**

John B. Meldrum, Paterson, N. J., assignor to the Barbour Flax Spinning Company, of same place.—This invention is an improvement in the class of thread eweners formed of vertical jaws adjustable toward or from each other; and the improvement consists in adapting the jaws to be adjusted independently and also simultaneously, as occasion may require.

**Improved Corn Planter.**

Edward Parmentier, Clinton, Ill.—The drive wheels revolve upon and carry the axle with them in their revolution by clutches held up by springs and operated by levers. By suitable mechanism, the said levers may be struck and operated to withdraw the clutches from the wheels by the rear end of the tongue when the furrowing and dropping devices are raised from the ground. To the lower ends of the conductor spouts are rigidly attached the openers, the rear parts of which are widened and have an opening formed in them directly beneath the discharge opening of the spouts, so that the seeds may be deposited in the bottom of the furrow before said furrow becomes partially filled by the soil falling inward from its sides. The forward part of the lower edge of the openers are inclined or rounded upward to enable it to pass through the soil and over obstructions more readily. The openers enter slots in the shoes, which are drawn along the surface of the ground, pushing back obstructions and smoothing the said surface. The openers may be adjusted to project below said drags according as the seed is to be deposited at a greater or less depth in the ground. To the outer sides of the drive wheel are attached rings, which are grooved to receive flanges formed upon bars, the centers of which ride upon the outer ends of the journals of the axle, and which are made of such a length that their ends may come in contact with and mark the surface of the ground as the said wheels revolve. The markers are connected with the wheels, so as to be carried around by and with the said wheels in their revolution by set screws, so that the bars may be conveniently adjusted to mark the ground directly opposite the hills.

**Improved Horse Hay Rake.**

Watson C. Martindale, Philadelphia, Pa.—This invention consists in an improved horse hay rake, which is so constructed that the teeth may be raised to discharge the hay by the advance of the machine, and may be disengaged automatically and allowed to drop back to the ground when the hay has been discharged. By suitable construction, as the machine is drawn forward, a rod will be revolved. When a sufficient amount of hay has been collected, the lever pawls thrown into gear with the ratchet wheel. This stops the revolution of the rod so that as the machine continues to advance the rod and axle are carried forward, which raises the teeth and discharges the hay. As the rod and axle are carried forward the projecting end of the lever pawl strikes an inclined arm attached to the foot board, which disengages the pawl from the ratchet wheel and allows the teeth to drop back to the ground, ready to again collect the hay.

**Improved Cane Stripper.**

Robert C. James, Denison, Texas.—This invention is an improvement in cane strippers of the class in which a pair of drawing rolls are arranged in combination with a fixed and movable spring stripping blade. A single stack is passed through each hole in the table to the rollers below by the attendant, so as to be seized by them and pulled through while the stripping blades are bearing against them on one side and pressing them against the hole on the other, which strips off the leaves and other substances suitable for fodder, and prevents them from going into the kettle, and saves a large amount of skimming.

**Improved Brake for Railroad Cars.**

James Temple, Mooresburg, Pa.—This invention relates to a novel and effective brake for railroad cars, designed to operate to a more advantageous degree than brakes of the description upon which the improvements are based. The invention consists in the employment of a longitudinal bar carrying at or near its ends arc-shaped brake shoes.

**Improved Heel Trimming Machine.**

Elisha U. Jones, Woodhaven, N. Y.—This invention has for its object to furnish an improved machine for trimming shoe heels. The crank, by means of which motions given to the machine, is attached to a shaft which revolves in bearings in the frame. To the shaft is attached a small bevel gear wheel, which engages with the large bevel wheel attached to a vertical shaft. To the upper end of the latter is attached a wheel, the edge of which is made in the form of a double cam, to allow the arm that carries the knife to move inward at the proper times. A screw rod limits the movement of the knife and serves as a guide rod to hold the coiled spring by which the knife is held out to its work. The knife is made with a finger, which projects in front of its cutting edge and rests against the edge of the guide, which rests upon the top of the cam plate and is secured detachably to the upper end of the vertical shaft. The guide is made of the exact form to be given to the heel, and must be changed with every change in the former size of the heel. A short hook rod on the arm enters a groove formed in the under side of the cam wheel, which groove is so formed as to cause the knife to move forward quickly to cut the elongated sides of the heel, and slowly while cutting the short curve of the rear part of the heel. A clutch grasps the top of the last directly over the heel, so as to hold the shoe heel firmly upon the guide plate while being turned and trimmed. In using the machine, the shoe is placed in position, and the crank is operated to give it a half revolution; the shoe is then removed and the revolution completed to bring the machine into position to receive another shoe.

**Improved Water Wheel.**

Oliver J. Bollinger, York, Pa.—This invention relates to that class of water wheels with which hinged or pivoted gates are used; and has for its object to remedy the difficulties arising from the manner in which the studs are fastened and secured to the gates. The invention consists in the lug of a pivoted or hinged gate of a water wheel, made with a vertical hole to receive the stud, and a transverse hole to receive the wedge key; and in the cross head stud, made with a transverse notch to receive the key for securing it detachably to the lug of the pivoted or hinged gate of the water wheel.

**Improved Method of Restoring Tinned Sheet Iron.**

William E. Brockway, New York city, assignor to William L. Brockway, of same place.—The vast number of tin cans used for preserving articles are considered worthless when emptied of their contents, and are thrown away by the million; but the iron which is tinned and used for these cans is of the first quality, or much tougher than ordinary sheet iron, and much better adapted for many purposes when restored, especially for binding trunks, and for many similar purposes where pieces of large superficial measurement are not required. The object is to utilize these cans now thrown to waste; and this invention consists in the process of restoring the iron to its original state, but in small sheets, and thereby utilizing it. Tin melts at about 450°, but will not entirely leave the iron until subjected to a higher temperature. The iron is therefore subjected to a temperature of about 1,000°, or to a cherry red. This cleans off the tin and anneals the iron, rendering the latter very pliable, and adapts it for many purposes where toughness and pliability are essential. When the iron is taken from the oven the pieces are passed between rollers, which press upon it just sufficient to straighten it and prepare it for market.

**Improved Rock Drill.**

George E. Nutting and Joseph C. Githens, New York city, assignors to A. C. Rand of same place.—This invention has for its object to furnish an improved steam rock drill, which shall be so constructed that the valve may be shifted at the proper time to cut off the steam, and at the same time admit the steam in front of the piston, so that it may cushion itself upon steam and diminish the jar or shock, and in which the piston may turn, and thus turn the drill as it makes its up stroke. To the end parts of the valve stem are rigidly attached two disks, at a distance apart equal to the distance required for the throw of the valve, and an additional thirty-second of an inch, more or less. Upon the stem upon each side of the valve are placed pistons of such a length as to give the valve and two pistons a play of about a thirty-second of an inch upon the stem, between the disks. The diameter of the disks is made enough less than the diameter of the end parts of the valve chest to allow the steam to pass the said disks freely. By suitable construction, as the piston comes to the upper part of the cylinder, the lower port is uncovered and the steam passes through it into the lower end of the steam chest, below the lower disk. As the steam enters the lower part of the steam chest it forces the disks, pistons, valve, and valve stem upward until the upper disk strikes its stop and stops the forward movement of the stem and disks. The steam now passes around the edge of the lower disk and forces the pistons and valve upward until stopped by the upper disk. This movement allows the steam in the end part of the steam chest to exhaust through the exhaust. The exhausts are so arranged as not to be fully closed until the valve pistons and disks have nearly completed their stroke. By this construction the valve and its attachments and the piston will always move in the same direction, which lessens the jar, and consequently the wear, of the mechanism. A simple friction device is so arranged as to rotate the piston as it rises, but to allow said piston to descend without turning. The lower end of the piston rod is made hollow to receive the drill bit, and is slotted longitudinally to divide it into three or more parts so that the drill bit may be securely held and may be conveniently detached when desired.

**Improved Stitching Gage for the Blind.**

William H. Richardson, Fort Smith, Ark.—This invention consists of an improved stitching gage for the blind, formed of bottom, front, and rear plates. In the upper part of the front plate is formed a horizontal slot through which the stitching is done. The upper edge of the rear plate is about upon a level with the lower edge of the slot in the front plate, and in the said plate are formed two vertical slots to receive the buckle bars to enable the work to be held firmly against the slot in the front plate. In the center of the bottom plate is a hand nut, through the screw hole of which passes a screw the upper end of which is rigidly attached to the platform, upon the lower edge of which the work rests when stitching straight work. The platform slides up and down along the inner side of the front plate, and is kept in place by grooved flanges. To the outer side of the front plate is attached a horizontal bar to prevent the gage from setting too deep in the jaws of the stitching horse. To the outer side of the front plate is detachably attached a ratchet bar which has as many teeth to the inch as the work should have stitches to the inch. Upon the outer side of a slide, where theawl is to be inserted, is formed an inclined projection, against which the tapering forward end of the ferrule of theawl strikes, and thus pushes the slide forward one tooth each time theawl is inserted. In using the gage, when the work has been stitched the length of the slot, the work is moved forward until theawl strikes the other end of the slot, the slide is moved up to it, and the gage is again ready for work.

**Improved Cotton Planter.**

Robert E. Bowen, George's Creek, S. C.—This invention relates to the construction of cotton planters with a view to enable them to be easily and cheaply manufactured, while their efficiency is maintained or increased. It consists in improving the ordinary shaking hoppers, which have arms moved up and down by side studs on a wheel, so that the seeding operation may be easily and conveniently stopped and resumed.

**Flame Extinguisher for Lamps.**

William D. Lindsley, Wathena, Kansas.—This invention consists in making a very durable and compact joint of both spring and extinguisher with the movable arm of the latter by bending and riveting the end of the arm.

**Improved Box Scraper.**

Charles Ellis, George W. Ellis, John D. Ellis, Philadelphia, Pa.—This invention consists in a certain construction of stock and scraper, and means of attaching the same to each other, and to the handles, whereby a convenient and handy tool is produced.

**Improved Windmill.**

Samuel Shannon, Shellsburg, Iowa.—This invention relates to improvement in the class of windmills having vanes so pivoted that the force of the wind tends to turn them around it; and consists of a double crank shaft and a reciprocating sleeve on the post, on which the wheel frame is pivoted and around which it swings, so contrived that a connection is made with a pump rod, or two or more, if desired, on the side of the post, and the rod or rods worked thereby without hindrance to the turning of the wheel frame and without any cramping or side draft.