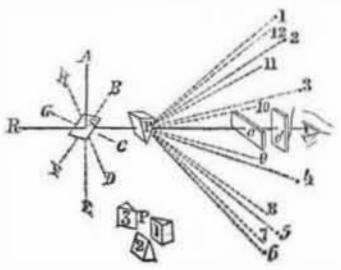
star wheel, S, in its proper position. The shuttle box—by this plan of operating it—can be made to revolve entirely, or make a semi or quarter revolution and rotate back again. Two such shuttle boxes can also be placed on one loom—one on each side.

There is neither spring, catch nor weight connected with the machinery, or operating the boxes. The links of the pattern chain can be painted and arranged together, just as the colors are wanted in the cloth, and these will be observable by the weaver at all times. Such a loom can be built in a very substantial manner, and from the ease of its motions, it is not liable to be broken in any of its parts. It can also be run at a high speed, because there must be less breakage of weft than on looms, which shift the boxes with a quick jerking motion.

More information may be obtained by letter (or otherwise) addressed to Mr. Ames, as above directed. This loom was awarded a silver medal by the Jury at the Crystal Palace.

Imponderable Agents.—No. 8.

[Second Series.]



Polarization of light.—This is one of the most extraordinary properties of light, and in the hands of opticians, it has recently become one of the most useful branches of optics, the phenomenon however, is not generally understood; it does not mean that a ray of light has two poles, like those of a magnet—a polarized ray of light, simply means, a *difference of sides*. The phenomenon of the polarization of light was discovered by M. Malus, a French officer of engineers in 1809. The double refracting property of Iceland spar, which had been so carefully examined by Huygens, drew also the attention of Newton, who concluded that the ray which suffers the unusual refraction must have its opposite sides affected by some virtue like magnetism, which gives them a tendency like magnetism. Malus in one of his frequent visits to the observatory during his residence in Paris in 1809, was struck with the brilliant reflection of the setting sun from one of the windows of the Luxembourg palace. On looking at the appearance through a prism of rock crystal, which he slowly turned round, he saw with surprise, that one of the images changed regularly from brightness to obscurity; next morning he repeated his experiment with the same results, and soon found that light reflected at a certain angle from the surface of the glass, acquires the same character as the extraordinary ray in the double refracting prison. This law was traced through various reflecting surfaces, but the career of Malus was cut short by a lingering disease in 1812.

That a ray of light should (in some cases) possess this property is not perhaps so wonderful or unexpected as that man should have been able to detect a fact so refined and remote from common observation, and even to distinguish different varieties of it, and investigate its laws. Indeed, these must be regarded as the very *penetralia* of physics, the very inmost secrets of nature that man has been enabled to wrest from her. If the *mensurable* spaces occupied by the *waves* of light be minute, how far less, in all probability, must be those *immeasurable* spaces to which its vibrations are confined (which even in sound are mostly inappreciable, though the waves occupy many feet); yet it is to the positions of these inconceivably minute vibrations that the differences of polarization are due.

Differences of *intensity* depend on their extent; differences of *color* on their frequency; differences of *polarization* on their form and direction.

These differences are not sensible to the eye, but are arrived at by inductive reasoning from facts like the following. Let R, fig. 1, represent a ray of light, which in its progress meets (obliquely) with the surface S; a portion of it will be transmitted, and the rest reflected in the directions S. A. Now, by making S revolve round an axis coincident with the ray, R S, we may obviously reflect it in various directions successively, as S B, S C, S D, S E, S F, S G, S H, allmaking equal angles with the original ray R S; and, if this be destitute of polarity, there is no reason why it should behave differently when reflected in these different directions, nor will a direct ray from any luminous source do so. The reflected light will bear the same proportion to the transmitted in each case; so that all the rays S, A, S B, &c. will be of equal intensity.—But if we find that they are *unequal*, the transmitted ray being *brighter*, and the reflected one *fainter*, when the latter is turned in the directions S B and S F (for instance), than in the directions S D or S H, we have distinct proof that this light has *sides*, or is *polarized*.

Or suppose we turn the ray aside by *refraction*, as by a prism P. By turning this prism round so as to take successively the positions shown in the lower part of the figure, at P. 1, 2, 3, we may plainly turn the ray upwards, downwards, or sideways, in any of the directions *p* 1, *p* 2, *p* 3, *p* 4, *p* 5, *p* 6, *p* 7, *p* 8, *p* 9, *p* 10, *p* 11, *p* 12, (the refraction in each case being equal). Now, if it behave differently in these cases; if, for instance, it be refracted doubly, or split into *two* rays of *equal* intensity when turned upwards or downwards, and into two of *unequal* intensity when turned to the right or left, its polarization is thus manifest.

Or again, if the eye receive this ray through a plate of some transparent substance *c*, and if more light penetrate this plate when it is held upright, as at *c*, than when held across as at *c* (though in both cases perpendicular to the ray,) we plainly learn from this not only the polarity of the *light*, but also that of the substance *c*, which must evidently possess a *grain* or polarity of texture, a difference of properties in different directions; and accordingly this action on light is perceived only in *crystallized* bodies, or those which, from the action of their molecular forces, assume certain definite geometrical forms, and whose *polarity* is also manifest in many other ways, as by their splitting in certain directions rather than others, their expanding by heat unequally in different directions, &c. &c.

General Scientific Memoranda.

Bohemian Crystal Knives.—Among the various novelties prepared for the new year, and in which the shops of Paris abounded were fruit knives of Bohemian crystal; the blade of white crystal, and the handle a happy mixture of white and blue, or white and claret colors.—Hitherto silver knives have been thought indespensable for fruit; but this crystal novelty is likely to supersede them; they are not only an ornament for a dinner table, but are more easily kept clean and bright than silver.

Fall of a Suspension Bridge.—The Suspension Bridge, uniting the cities of Covington and Newport, Ky, just erected at a cost of $80-000, and whose entire destruction by falling into the river in consequence of the breaking of the keys, had, as is stated by the Cincinnatti "Commercial," just been taken off the hands of the contractors by the towns, and a toll gate established. Its capacity of resistance was never tested before the job was taken from the contractors, a neglect quite unpardonable.—When the bridge fell, a drove of cattle were upon it near the centre, while the driver doubting the security of the bridge, stood at a little distance, on the Newport side, and watching his cattle, saw them take the dizzy plunge, amid crashing timber and iron, into the icy river.

Manure Irrigation in Agriculture.—Mr. Mechi, of Tiptreehall farm, Essex, England, has this year read at the Society of Arts his annual statement of experiments on the poor land he has been farming at Tiptree. This land, when he took it, was of the most meagre kind, and nothing like repaid the expense of cultivation. Mr. Mechi has drained it, irrigated it, manured it, employed all the improved machines, erected buildings for the cattle, has been at great expense, and has adopted all the newest improvements, even to the American threshing machine. The result has been that last year—a bad year for weather—after paying all expenses, he is the gainer of $3,000 in hard cash, and his estate is worth ten times what it was when he took it. He enlarged much upon the immense improvement in grasses obtained by liquid manure, and expressed his wonder that ships should be sent to a distant land, and $50 a ton paid for guano, when a far better fertilizer was to be had at home. He instanced a piece of pasture land, of his own, which eighteen months since was a wretched piece of plastic clay, producing meagre drab colored grasses. It was like bird lime in the winter, and iron in the summer, and really not, and never had been, good for any thing. Irrigation with liquid manure has changed all this, and now it produces the very finest and most fattening grasses, the importance of which may be understood when Professor Way, in his valuable analysis, stated that irrigated grasses contained 25 per cent more meat making matter than those which are not irrigated.

The difference between the present and former Balance Sheets, lies in the live stock accounts. By irrigation he is enabled to double, if not triple, his green and root crops, and thus renders them highly profitable instead of being unprofitable. By doubling his stock he doubles the quantity of manure. And by doubling his green and root crop he diminishes their cost by one-half. Irrigation permits each crop to be responsible for its animal charge, thus rendering them all remunerative.

Breech-Loading Cannons.—A final trial of Dr. Church's breech-loading cannons has been made at Woolwich, England. They were fired fifty times with heavy charges of powder and ball with perfect success. No defect could be pointed out by the best judges. According to this plan, heavy guns can be loaded and fired and brought into position by two men five times in a minute, and field pieces eight times in a minute. The gun heats but very little.

Glass Columns.—The Prussians have put glass to a novel use. A column, consisting entirely of glass, placed on a predestal of Carrara marble, and surmounted by a statue of Peace six feet high, by the celebrated sculptor Rauch, has been erected in the garden of the palace at Potsdam. The shaft is ornamented with spiral lines of blue and white.

Marine Telegraph Cable Across the Hudson.—A new cable of telegraphic wire made by Messrs. Newell & Co., at Gateshead-upon-Tyne, England, has been laid across the Hudson River from Fort Washington to Fort Lee, by order of Mr. Rogers, Superintendent of House's New York and Washington telegraph line. The cable contained a single conductor of No. 16 copper wire, covered with two coats of gutta percha, and wrapped with rope yarn, forming a core, over which are spirally laid eight No. 10 galvanized iron wires, as a metallic covering, to protect the enclosed copper conductor. It weighs 3,525 pounds, is three fourths of an inch thick, and one mile in length. It was unrolled from a capstan on board the steamboat Delaware.

There are about one hundred steamers lying side by side at the Cincinnati levees, some frozen in by the ice and others aground. Cargoes are taken on board, so that the shipper may get a bale of lading and the advances upon it. The cargoes are insured when put on board.—Two things endanger these vessels and their freight. Fire breaking out in one would be likely to sweep the whole, and on the breaking up of the ice by high water, they are in danger of being sunk, as numbers were two years ago.

Two mammoth steamers are building in Buffalo, to run in connection with the Michigan Central Railroad route on the opening of navigation. They are estimated to cost $500,000 each, and are to be named the "Plymouth" and "Western World."

Vastness of the Universe.

Professor Hitchcock, in one of his popular scientific works has aptly illustrated the vastness of the Universe. Light, although apparently visible instantaneously, really requires an appreciable time to travel. A flash of lightning, occurring on earth would not be visible on the moon till a second and a quarter afterwards; on the sun till eight minutes; at the planet Jupiter, when at its greatest distance from us, till fifty-two minutes; on Uranus till two hours; on Neptune till four hours and a quarter; on the Star Vega, of the first magnitude, till forty-five years; on a star of the twelfth magnitude till four thousand years.

Extraordinary Invention.

Messrs. Editors—While we are every day hearing of new inventions and the progress of reform, I take the liberty to state to the readers of your valuable journal what I have invented and am about to bring before the world at the earliest possible period. For the last four years I have had my mind engaged upon a marine locomotive, and I have succeeded in bringing it to nearly a perfect plan, it is unlike anything now used in navigating the ocean: one of its most important features is the remarkable fact that it has no head-water resistance—thus the speed can be increased in the same ratio as we increase the number of revolutions. I make these statements candidly, and my object is to open the way to give my invention a public demonstration, and if any one has any invention of the same kind, embracing the same principle, let him make it known now, and not wait until the thing is before the public, and then come forward and claim it as his own. If any one has invented a locomotive that will cross the Atlantic in four days without any head-water resistance—let him speak now; if not, let him forever hold his peace, for I have such an invention, and am ready to prove my statement to any one who will address me postpaid. Henry A. Frost.

Worcester, Mass., Jan. 18, 1854.

[Since the above letter was in type, Mr. Frost has furnished us with diagrams of his astonishing invention, from which we shall execute engravings to present to our readers in a few weeks.

To Detect Cotton in Linen.

Elsner has published a critical review of the various methods proposed to distinguish cotton and flaxen fibres (Berlin. Industrie u. Handelsbl. xxiv.), the best of which we extract from his report. Stockhardt observed that a flaxen fibre, inflamed in a vertical position, and then extinguished, appeared to be carbonized at that end in a smooth, coherent shape, while cotton, similarly treated, appeared to be spread out like a brush or tuft. Elsner observes that it especially occurs when the flame is violently blown out, and that it succeeds with dyed goods, unless dyed by chrome yellow.

The potash test consists in putting the fibre into boiling caustic potassa-lye for a couple of minutes, when the flax turns deep-yellow and the cotton is scarcely changed. The test is not reliable.

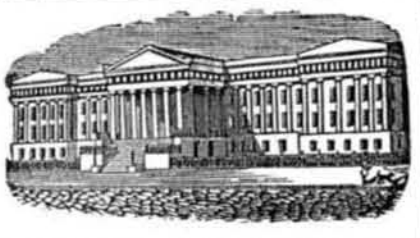
One of the best is the microscopic examination, for when flax is magnified 300 times, it appears like long, compact tubes, with a narrow channel in the centre, while cotton appears to be flattened, ribbon-like cylinders, with a wide channel, and mostly in spiral windings.

The test with oil of vitriol is reliable in an experienced hand, but every trace of weaver's gum must have been previously removed by boiling with water. The fibre are laid on a plate of glass, and oil of vitriol dropped on it.—A single lens is sufficient to observe the effect. In a short time the cotton fibre is dissolved, the flax unalterated, or only the finest fibres attacked.

The oil test is also a good one, and convenient in execution. When flaxen fibres are rubbed up with olive-oil, they appear transparent, like oiled paper, while cotton, under similar circumstances, remain white and opake.—Dyed goods exhibit the same, if previously bleached by chloride of lime.

Elsner's method consists in putting the fibres for a few minutes into a tincture of various red dyes, of which cochineal and madder give the most striking results. The tincture is made by putting 1 pt. madder, &c, into 20 pts. common alcohol for 24 hours. In the cochineal tincture, cotton is colored bright-red; flax, violet;—in madder, cotton becomes light-yellow; pure flax, yellowish-red.

It is better to employ several of these tests, the microscopic, oil, sulphuric acid, and combustion, rather than to rely upon a single test.



[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JANUARY 21, 1854.

COPYING PRESS.—By Calvin Adams, of Pittsburg, Pa.: I claim the combination of the lever, bar and upper pressing plate, connected by means of the adjusting screw, and the mode of communicating pressure to the upper pressing plate by means of a cam at the end of a lever, working at the end of a lever bar which sustains the upper pressing plate, also the use of the finger at the end of the cam lever in combination with the rest and other parts of the press for the purpose of raising the upper platen of the press and sustaining it in its place while the copying book is inserted or withdrawn as set forth.

WOOD SAWS.—By Romeo Andrews & Albert F. Andrews, of Avon, Conn: We claim the peculiar form and relative position of the planing teeth in combination with the sawing teeth, as set forth.

RAILROAD CAR BRAKES.—By L. B. Batcheller, of Arlington, Vt.: I claim operating the levers which are attached by two rods to the cross bars, L M, by means of vibrating bars C C, said bars C, being moved or operated either by turning the standards E E, or by the action of the buffer-rods upon the two levers, both devices being attached to the trucks and otherwise constructed and arranged, as set forth.

DUMPING CARS.—By C. P. Bailey, of Zanesville, Ohio: I claim hanging or connecting the bodies of dumping cars or wagons to the trucks, axles or bolsters, which usually support the bodies of similar carriages, by means of hinged cross braces or arms which pass transversely from end to end, or crosswise of the body as the case may be, one end of each of said arms or braces being hinged to the body and the other ends to the bearing or support beneath them, for the purpose of allowing said bodies to swing or dump either way, as described.

FANCY CHECK LOOMS.—By Enoch Burt, of Manchester, Conn.: I claim hanging the levers or jack lifters below the web and on a shaft parallel with, and at or about a verticle plane with the "fell" or cloth making line so as to produce an even shed both at the top and bottom and render the shifting of the jacks from the said levers sure, avoiding the jar of the machinery and obviating the liabilities of the jacks to hang on the flanges of the levers, as set forth.

ROSIN OIL LAMPS.—By Silas Constant, of Brooklyn, N. Y.: I claim enclosing the portion of the wick which rises above its guide, within a perforated conicle tube M, for the purpose of causing a portion of the air that enters the chamber between G and H, to be brought in contact with the wick which is there in an uncompressed state, and to rise in and about the same to the flame, as set forth.

Second, I claim the draught tube placed within the burner, and having the button and the perforated and deflecting head conbined therewith, substantially in the manner and for the purpose herein set forth.

Third, I claim the lip projecting downwards from the under side of the cap within the series of air holes in the same for the purpose of preventing gusts of air from producing puffs of smoke up the chimney, as set forth.

WASHING MACHINES.—By Wm. Cunningham, of Holliday's Cove, Va.: I do not claim the general features of the rubbing frames and plunger; but I claim the roller frames hung in adjustable boxes and connected by weighted arms, as described.

BEE HIVES.—By John H. Dennis, of Boston, Mass: I claim a moth trap consisting of a close chamber, having no communication with the rest of the hive and in which may be placed a vessel containing some fluid attractive to the bee-moth, in combination with a conical or tapering entrance tube, as set forth.

ATTACHMENT TO PIANOFORTES.—S. B. Driggs, of Detroit, Mich.: I claim, first, the combination of a series of metallic tongues or springs with the pianoforte or other stringed instrument, in such a manner that a tongue and a string are struck simultaneously by hammers actuated by a single key, as described.

Second, actuating the hammers which strike the tongue, by means of a jack of any suitable form, attached to the damper of its corresponding string, whereby the said hammer is caused to strike by the raising of the damper, when the pianoforte action is brought into play, and thus the tongue and string are struck simultaneously.

AIR-HEATING FURNACES.—By C. R. Harvey, of New York city: I do not claim adiving flue, or a coil of heating pipe, as they are both well known devices; but what I do claim as my invention, is constructing the bonnet or top of the fire chamber, with a depression at the centre, into which the smoke or exit pike enters, so that the heat is equalized all around and the expansion and contraction is made uniform, as specified.

STOVE.—By D. G Littlefield, of Lowell, Mass.: I claim the cylindrical grated fire pot in combination with the gas receptacle constructed and operating in the manner substantially as described, by which I am enabled to burn the gaseous and more inflammable elements of the coal in immediate contact with its more refractory portions and thus ensure the complete combustion of them both.

VENTILATING RAILROAD CARS.—By George Neilson, of Boston, Mass.: I claim two or more ranges of sponges or capillary partitions as arranged and combined with the cistern of water and open mouthed case made to communicate with the interior of the car and the surrounding atmosphere and to operate when the car is in movement, as specified.

HOLLOW SLABS AND FLANGED METALIC PLATES.—By Thomas Prosser of New York city: Although I have used the term wrought iron, I mean to apply the same to all and any of the weldable metals particularly steel and platinum, that I do not confine myself to any particular form or configuration by the term hoop or ring, as that may mean annular, round, square, oval or any irregular form whatever.

What I claim is the manufacture of hollow slabs when the same are made by welding together pieces of metal as described, or in any manner analogous thereto.

I also claim the manufacture of flanged metallic plates when the same are made by welding together pieces of metal in the manner fully set forth.

FEED APPARATUS OF STRAW CUTTERS.—By Harvey Trumbull, of Central College, Ohio: I claim the device for securing the clear passage of the straw &c. over the intervals between the trough and mouth piece and the lower roller, consisting of fingers attached to the trough, and passing over the said roller into or upon the mouth piece, secure from interference with the passage of the straw &c. by grooves in the face of the roller in which the fingers lie.

MILLS FOR GRINDING SUMAC.—By Peter and W. S. and J. J. Hench, of Port Royal, Pa.: We do not claim the grinding by balls as that has long been known, but not in conjunction with a roller in the manufacture of sumac, which is necessary to detach and partially pulverize and slit the material before carrying it to the balls.

We claim the employment of a cylinder having projecting points or teeth on its internal surface with a roller having heads on its ends, on which it rolls and is kept above said teeth, said roller also having teeth projecting from its surface interlocking with those first named on the cylinder by which the better portions of the sumac are beaten off and passing through the apertures in the cylinder enter another when they are ground fine, as described.

MACHINERY FOR FULLING CLOTH.—By J. H. Jennings and Thomas Brierly, of Clayville, N. Y.: We do not claim the individual parts thereof, nor the combination of the gatherer and horizontal and vertical rollers or fold breakers with a cylinder or wheel or cylinders or wheels having a groove therein or flanches on each side and a cylinder or wheel fitting and working in such groove or between such flanches nor the weights and springs to be used upon any or all of such rollers or fold breakers and pressure rollers, but we claim the named rollers formed with flat surfaces in combination with the gatherer the horizontal and vertical rollers or fold breakers and guide, as set forth.

PISTON VALVES AND STEAM PASSAGES IN CYLINDRICAL STEAM CHEST.—By Joseph Marks, of Boston, Mass.: First, I claim constructing a steam chest with continuous circular ports or passages, both for the induction and exhaust steam, arranged as herein above described so as to keep a constant and equal pressure of steam upon both ends and the periphery or outer surface of a cylindrical piston valve which travels in the bore of the same, and by which also is secured a large area of port by a very small movement of the valve, and this I claim whether the said valve be used as a main valve "cut off" or throttle valve.

Second, I claim the combination of a piston valve composed of two heads, which fit closely in the bore of the circular steam chest and are united by a cylindrical portion of less diameter than the said heads with a steam chest constructed with circular ports or passages as specified, in the foregoing claim, by which a large exhaust space is secured without increasing the size of the said steam chest or making it very large, and by which means alone provision is made for the escape of the exhaust steam into the exhaust chamber.

THRESHERS AND CLEANERS OF GRAIN.—By James Robinson, of West Hebron, N. Y.: I claim the mode of checking the motion of the carriage when under headway, and steering the same by means of the tightening pulleys combined as described, with the threshing cylinder and a two wheel cart with double gearing.

I also claim the employment, in the manner described, of the adjusting rods in combination with the feed roller for the purpose of regulating the amount of material to be taken up by the feed roller, as explained.

I also claim the employment of said adjusting rods in combination with the feed roller and threshing cylinder for the purpose of regulating the amount of material to be taken up by the feed roller and of keeping up the material to the threshing cylinder.

I also claim the combination of the adjusting rods, feed roller, and gauge rods, substantially in the manner herein above set forth.

I also claim the combination of the gauge rods, with the feed roller and concave or mouth of the concave of the threshing machine, substantially, as described.

PIANOFORTES.—By Alexander Hall, of Lloydsville, Ohio: I do not claim the employment of extra strings or extra bridge or bridges for the introduction of the lower octavo notes as they are set forth in the patent of Simeon Draper granted June 20, 1845, in which an extra bridge is used outside the regular bridge, thereby elongating the instrument.

I claim, first, the mode substantially as described, of introducing upper octave notes in pianofortes, said mode consisting essentially in the employment of extra strings and extra bridges as set forth, so that the performer can play in one or more octaves at the same time with the same facility as he could execute ordinary music on the common piano.

Second, I claim the arrangement of the dampers for the octaves, in combination with the alternate changes of the two upper octave strings to the right and left of the the leading strings in each set, for the purposes set forth.

ATTACHING SHAFTS TO WAGONS.—By Daniel Haight Jr., of Clinton, N. Y.: I claim attaching the shafts or tongue by the lateral insertion of the cylindrical headed draw iron into the circular socket of the jack, by which I am enabled to form a safe and ready detachable connection between the shaft or tongue and axle without the use of bolt and nut or bar or any intermediate means.

MACHINE FOR WETTING PAPER.—By William Overend, of Cincinnati, Ohio: I claim, first, the yielding gauges constructed as described.

Second, the combination of the endless bands, the nippers, the roller M, the rollers U U, and their bands the roller Y, with its bands and counterbalance, the carriage with its verticle arm, the pieces, the bent levers and the cams constructed and combined substantially as described, for taking the wetted paper from the blanket and conveying it to the movable platform, as set forth.

Third, the combination of the sliding pieces moving in the vertical grooves with the arms and the rollers, constructed and combined substantially as described, for adjusting the depositing apparatus to the height of the pile of paper.

Fourth, the combination of levers with the roller and curved groove, arranged substantially as described, for maintaining a uniform tension of the bands in every position of the depositing apparatus.

GRAIN HARVESTERS.—By Aaron Palmer, of Brockport, N. Y., and Stephen G. Williams, of Janesville, Wis.: We do not claim the discharging the cut stalks and heads of grain from a platform, by means of the combination of a rake with a lever, and the co-operation therewith of a series of teeth on the face of the main driving wheel, and an inclined rail rising above the curved guard of the platform, as these are already secured to us by letters patent.

But we do claim the method of transferring motion to the rake on the platform from the driving wheel, by means of the double curved rack and pinion on the axle of the driving wheel, the iron arm, latch and spring, as described.

Also, the method of hanging the reel so as to dispense with any post or reel bearer next to the standing grain, as herein described, thereby preventing the grain from getting caught and held fast between the driver and a reel supporter.

ROLLING AXLES AND SHAFTS.—By Jacob Reese, of Sharon, Penn.: I claim the method of shaping bars of heated iron into axles and shafts of the usual proportions, and with collars and journals, by rolling them on their own axes and under pressure between properly shaped converging surfaces, substantially as described, but I make no claim to mere converging surfaces, whether fixed or movable.

THRESHERS AND SEPARATORS OF GRAIN.—By C. R. Soule, of Fairfield, Vt.: I claim, first, the spring at the end of the feed board, to prevent damage from stones getting into the machine; secondly the straw carrier and separator, consisting of the notched bars having an endway motion, and the beater as specified, combined with the moveable conducting board for insuring the descent of the grain.

I also claim the mode of hanging and moving the shoe, as described.

MACHINE FOR MAKING WINDOW BLINDS.—By M. C. Stiles and Tristram S. Lewis, of Hollis, Maine: We do not claim the cutter, chisel or any part of the machine separately; but we claim the combination of the cutter and chisel worked simultaneously by the foot of the operator or by other power, in the manner set forth.

DISTILLING APPARATUS.—By Carl E. Werner, of New Castle, Ill.: I claim, first, the rim rising from the floor of the chamber and encircling the discharging opening of the conducting pipe for prevention of the interference of steam with the discharging action of said pipe.

Second, surrounding the entrance of the conducting pipe with an open tubular screen which rises above the pipe entrance to a height greater than any possible ebullition of the liquid, and terminates below at such portion of the liquid as it is desired to discharge from.

MORTISING MACHINE.—By J. E. Brown and Stephen S. Bartlett, of Woonsocket, R. I.: We claim operating the chisel by the graduated conical cam, in combination with the mechanism described, or its equivalent, which enables the operator to vary the length of the stroke made by the chisel while it is in operation or suspend its motion at pleasure without disconnecting the driving power applied to operate the machine.

REISSUE.

PORTABLE HORSE POWERS.—By J. A. Taplin, of Fishkill, N. Y. Patented originally, Dec. 30, 1841: I do not claim the making of the large wheel of a horse power in segments merely, but I claim such wheel and axle composed of a number of parts arranged and connected as described, so that the wheel can readily be taken apart and put together again, to facilitate the frequent removal of the horse-power from place to place to bring it near the work on which it is to be used.

I also claim connecting the segment of the rim of the horse-power by means of clamps constructed, as set forth.

DESIGNS.

DINING ROOM STOVE.—By Conrad Harris and Paul W. Zoiner, of Cincinnati, Ohio.

COOKING STOVE.—By Conrad Harris and P. W. Zoiner, of Cincinnati, Ohio.

SHOVEL AND TONGS.—By Charles Zenner, of Cincinnati, Ohio, assignor to M. Greenwood & Co., of same place. Two designs.

NOTE.—A number of the patents in the above list were secured through the Scientific American Patent Agency.

Recent Foreign Inventions.

MANUFACTURING PAPER.—Geo. Stiff, of London, Eng., patentee. In carrying out his invention, the patentee makes use of straw, or grass, "gunney bagging," and "hemp bagging," preferring however, the employment of straw.—When straw, grass, or vegetable fibre of any similar kind is employed, the first process made use of is to cut the straw or fibre into lengths of about half an inch,—which may be done in a chaff-cutting machine or any similar apparatus heretofore employed for the purpose; after which, the straw or fibre is winnowed, by any suitable contrivance, in order to separate the knots and other portions of the fibre which could not be readily reduced to the consistency of pulp. The straw or fibre, thus treated, or the gunney bagging, or hemp bagging, after having been suitably prepared, is placed in a boiler or vessel, together with a sufficient quantity of clear water to cover the fibre or other material, and boiled for the space of one or two hours. This boiler or vessel is furnished with partition or diaphram, finely perforated, or composed of gauze or similar material, through which the water may be drained off from the fibre or other material, and carried away through a discharge-pipe, which is brought into connection with the lower surface of the boiler or vessel. After this process, the fibre or other material is to be immersed in lime-water, in the proportion of about 1 cwt. of lime-water to every cwt. of material, and to remain so immersed for the space of about 24 hours, the mixture being occasionally stirred. After the expiration of this time, the lime water is to be drained off, and a fresh solution poured on, which is again drained off, as before. When this operation has been continued during about three days, the fibre or other material is to be placed in water, t which alkali has been added, in the proportion of about 10 lbs. of alkali to every 1 cwt. of water, and boiled for the space of two or three hours; the alkaline solution is then drained off, in the manner before described. After the fibre of the material has been thus treated, it is washed and bleached in the same manner as when bleaching rags; that is to say,—by running it into tanks or vessels, with a quantity of chlorine or bleaching powder, sufficient to bleach it to that degree of whiteness which is required for the quality of paper to be made. After being thus bleached, the straw or other fibre or material, may be washed and beaten, and reduced to pulp or half stuff, in the usual manner; and the pulp or half stuff may be converted into such paper as shall be required by the process heretofore in use.

The patentee claims the substitution of lime-water for other alkaline solutions heretofore employed in the maceration of straw, grass, or other vegetable fibre, or gunney bagging, or hemp bagging, used to form the pulp or half stuff, in the manufacture of such descriptions of paper as are produced from the aforesaid materials.—[Newton's London Journal.

FIRE-PROOF PAPER—E. Maniere, of London, patentee. This invention consists in applying asbestos to the manufacture of paper. The asbestos is rendered very fine and pulpy, and mixed along with the pulp of rags.

Tanning Cotton and Linen.

English and French fishermen have been long in the habit of tanning their sails, &c. in bark liquors, in order to render them more durable. Miliet states that pieces of linen, treated for 72 hours with an oak bark liquor, at 150°, and stretched on frames, remained unaltered in a damp cellar for 10 years; while untanned linen in the same place and for the same time had entirely rotted. The one frame, also tanned, was perfectly preserved, and the other, untanned, had rotted. It was further shown that linen, which had began to moulder, might be preserved from further change by being tanned. It seems to be only necessary that the articles should be kept 2 or 3 days in a warm solution of tannin.

Awnings may be treated in this manner with either oak bark, or sumac,—both will answer. This will afford a useful hint to our sail-cloth manufacturers.

Ocean Steamers.

Within a short time three new steam lines have been formed to connect Liverpool severally with Maine, New Foundland and New Brunswiek, and which will comprise 10 steamships as follows: Liverpool and Portland line 3; Liverpool, Glasgow and Montreal, 5; Liverpool and St. Johns, 2. The first mentioned will be semi-monthly. The pioneer of the line, the Sarah Sands, has already made her first trip.—The steamers of the Montreal line will measure 2,000 tons each, and one of them will be ready in June next. The line to St. Johns is projected by the proprietors of the St. Johns and Liverpool line of packet ships, which consists of eight vessels. The steamers now proposed are iron screw steamships, of 1,600 tons, to be bark-rigged, and to cost $250,000 each. They will each cross the Atlantic once a month, touching at St. Johns, New Foundland, on every trip.

Cast and Wrought Iron Rails.

It has been proposed to employ cast instead of wrought iron rails, on our railroads. The reasons given for the substitution of the former for the latter are, greater power of resisting crushing pressure; and also greater cheapness. The cast iron rail was the first and consequently it is the oldest. If the action of locomotives and trains upon rails was merely a crushing pressure, then the cast iron rail would be the best—but the action of a train upon the rails is frequently like that of a number of heavy and rapid blows upon an anvil. As cast-iron is very brittle, and breaks very easily during severe frosts by a blow, it would not be suitable in our climate during the winter season.

Pittsburg Statistics.

There are in Pittsburg and its vicinity seventeen large rolling mills; twelve principal or large foundries; twenty glass manufactories; about twenty engine and machine shops; five large cotton factories; four large flouring mills, besides some smaller ones; and it is estimated that there are more than one hundred steam engines in operation in the city and vicinity.

Cold in England.

By the last news from Europe, it appears that England has been visited with the severest cold ever recorded in history, namely, 4° below zero. A number of persons have been frozen to death, as no preparations are ever made by the people for such severe weather.

The New Patent Law of England.

By the new patent law of England, the heirs of a deceased inventor can take out a patent. This could not be done under the old law, if the inventor died between the periods of filing his application and the enrollment of the patent.

Tracing Paper.

A sheet of fine thin white paper dipped into a thick solution of gum arabic and then pressed between two dry sheets, renders the three transparent when dry; it is very useful for tracing purposes as it can either be written or painted upon.

There are on the earth 1,000,000,000 inhabitants; of these 33,333,333 die every year, 91,824 every hour, and sixty every minute, or one every second. These losses are about balanced by an equal number of births.

Elastic Varnish for Leather.

Take two parts by weight of resin, and one of india rubber, and heat them in an earthen ware vessel until they are fused together, after which they should be stirred until they are quite cold, a little boiled linseed oil may be added while the materials are hot.

If ivory becomes brittle by age, it will recover its original quality by being boiled in a solution of pure glue.