## THE FOUR ORGANIC ELEMENTS.

### OXYGEN, HYDROGEN, NITROGEN AND CARBON.

### II.—HYDROGEN.

Hydrogen makes its most common appearance to us in flame. Whenever we see a blaze, thereare many chanecs to one that there hydrogen and oxygen are entering into combination; in other words, that hydrogen is being oxydized or burned. There are a few exceptions: sulphur, phoshorus, and other volatile substances, as well as those gases which burn at all, burn with a blaze; but most of the flames that we see—the blaze of an oil-lamp, of a candle, of illuminating gas, of bituminous coal, of a wood fire, of nearly all fire—are, wholly or in part, the result of the combination of oxygen and hydrogen. In a blaze, the heat and light are all on the outside, as it is here alone that the burning gas can come in contact with the oxygen of the air. If we take a blow-pipe and blow the air through the flame, we set the whole body of the jet of gas on fire and increase the heat enormously. In the compound blow-pipe, pure oxygen gas is mixed with pure hydrogen gas as they issue from the pipe, in the proportion of eight ounces of oxygen to one ounce of hydrogen, and the most intense heat is produced which it is possible to produce by combustion.

Oxygen and hydrogen combine to form water in the proportion of one pound of hydrogen to eight pounds of oxygen; or more exactly, 1,000 lbs. of hydrogen to 8,013 lbs, of oxygen. Oxygen and hydrogen also form one other combination, in the proportion of 1,000 lbs. of hydrogen to 16,026 lbs. of oxygen. This compound is a sirupy liquid of a nauseous bitter taste, which does not become solid even in a very intense cold. Without the interposition of other substances it is impossible to make oxygen and hydrogen combine in any other proportions except these two. If we mix 8,013 ounces of oxygen with 1,000 ounces of hydrogen and touch the mixture with a spark of fire, the two gases combine with a flash and a report, forming water. There is so much teah developed that the water at first is expanded in vapor and is invisible, but it soon cools and condenses into the liquid form. If there is a single grain of either oxygen or hydrogen more than the proportion above stated, such surplus will not enter into the combination, but will remain separate and will retain the gaseous form. The other combination, which forms the sirupy liquid, is of just twice the quantity of oxygen to the same quantity of hydrogen.

Water may be decomposed by means of a galvanic battery, and the oxygen all carried into one jar and the hydrogen into another, when it is found that the oxygen, though eight times as heavy, occupies precisely half the bulk of the hydrogen.

## WEEKLY SUMMARY OF INVENTIONS.

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

### BUNGS AND SPIGOTS FOR LAGER-BIER AND OTHER LIQUOR CASKS.

John Keane, of New York City, has a good improvement in bungs or spigots for lager-bier and other casks, by which the liquor can be preserved in good condition, on draught, for a much longer time than when a common bung or spigot is used. The improvement consists in constructing a bung or spigot with a reservoir to be filled with spirits, and with a system of passages which causes all the air admitted to the cask to pass through the spirit and be impregnated with alcohol, thereby, in a great measure, preventing its injurious action on the liquor, which is thus kept good for a long time after the cask has been tapped. The patent is assigned to John Keane and Andrew McLean Wood.

### IMPROVED COTTON GIN.

The object of this invention is to obtain a cotton gin that will gin both the large and short staple cotton equally well without injuring the fiber, and with a rapidity equal to the ordinary saw gin. The invention consists in the employment or use of three or more firmly toothed or serrated cylinders, so arranged or disposed as to rotate nearly in contact with one another and form a cotton chamber or enclosure at their inner sides, the contiguous cylinders rotating in the same direction so that they will present, at the space between them, oppositely moving surfaces to the cotton, and by the action of said surfaces effectually separate the cotton from the seed. The invention also consists in using, in connection with the cylinders aforesaid, stripping brushes and a register; the former to strip the lint from the cylinders, and the latter to regulate the discharge of the seed from the cotton chamber. The inventor is John Wilson, of Anderson, S. C.

### IMPROVED STAVE MACHINE.

The object of this invention is to obtain a machine whereby staves for pails, tubs, &c., may be dressed, jointed, tongued and grooved at one operation, and with one and the same device. The invention consists in the employment or use of concave and convex rotating cutters, with a suitable bed-piece, tongueing and grooving cutters, and a pressure roller and cam, so combined and arranged for joint operation, that the staves may be dressed at both sides and perfectly finished, ready for immediate use as they leave the machine. The inventor is James Decker, of Reidsville, Ga.

### IMPROVED GAS-HOLDER FOR FERRY-BOATS, DWELLING-HOUSES, &C.

This invention is principally intended for use on a very small scale, as for receiving and conveying for the illumination of ferry boats or other vessels, or of other conneyances, gas which has been generated on shore or in stationary works, or for the reception of illuminating gas generated in dwelling-houses or other places where it is to be used. It consists in the construction of a gasometer, with its upper portion of conical form, having sides of india-rubber cloth, or other suitable material, combined with a head of stiff material, and of such size that it may be introverted within the lower tank-like portion, to expel the gas therefrom by pressure mechanically applied to its head. It is the invention of Jas. McFarlan, of Brooklyn, N. Y.

### IMPROVED TYPE-CASE.

This consists simply of a zinc plate, punched full of small holes about a quarter of an inch apart, to be substituted for the ordinary bottom of a type-case. The object is to allow the dust to rattle through and thus keep the case clean. We have had one in our printing-office two or three months, and think it a good improvement. Any one wishing further information on the subject, may address Hunter & Gilson, Bryan, Ohio.

## FOREIGN SUMMARY—METALS AND MARKETS.

The most astounding intelligence that we have received since our last issue is that of the explosion that occurred on board the *Great Eastern*, whereby eight engineers and firemen lost their lives, by scalding and inhaling the steam, and several others were severely injured. The disaster was caused by a defective water-heater, combined with great carelessness on the part of the engineer who had charge of the working of the engines at the time of the accident. The material damage consisted of one huge funnel or smoke-pipe, 40 feet high, being blown up vertically 30 feet, and thrown on the deck; the collapse of the funnel under the deck, together with an explosion of the iron casing of the funnel. The lower part of the funnel or smoke-pipe from the boiler to the deck was 40 feet high, 6 feet in diameter, and made of boiler-iron half an inch thick. Around this was a casing of the same hight and thickness of metal, with a space between the two about six inches wide, or a foot in diameter altogether. This space formed a huge annular water-heater, through which the water was pumped on its way to feed the boiler for the purpose of absorbing the waste heat from the smoke-pipe, and also to cool the space around on the outside. Owing to a defect in the working of the feed pump, its communication with the heater was shut off, so that the water was sent directly through another pipe to the boiler. As the water in the heater communicated with the boiler by a pipe at the top, of course it was filled with water, which was maintained at a heat at least equal to that of the steam in the boiler, namely, 283° Fah. A small pipe communicating with the heater, and rising above it 30 feet, had an opening in it to act as a safety valve, but it is said that a cock on this was closed, so that the safety opening could not act. As the water in the heater received continued heat from the smoke-pipe, without any cold water being fed in, the interior pipe of the funnel became very hot and collapsed, then the outside shell or heater casing pulled apart, and the water being 288° in temperature (or 71° above that of atmospheric pressure), as soon as it was relieved of the excess of 45 pounds pressure, it instantly flashed into steam of low pressure, and with its great expansive power it at once shot the heavy funnel weighing several tuns upwards, and also burst outwards circumferentially, destroying everything for a considerable space around. We describe this case with some minuteness, because it is a singular one, and goes to show how a small excess of pressure at first, sufficient merely to produce a rip or collapse, may lead to the instantaneous generation of a great body of steam and a great excess of pressure finally. It is stated that this heater was put on the funnel against the remonstrances of John Scott Russsell, and was not applied to the funnel of the screw engines. Of this, however, we are not positive. No damage was done to the hull, machinery, or boilers; the engines never ceased working, but there was great consternation on board for some hours. The damages amount to about $25,000, and will be repaired by Mr. Russell in a few weeks. It is now reported that the *Great Eastern* will assuredly come to New York, as it is expected she will not draw over 25 feet water, and may thus pass over the bar at high tide. Her brief trip from the Thames to Portland, England, has most remarkably demonstrated the superior speed of this great vessel, and her steadiness in a heavy sea. With less than one-third of the usual speed of the engines, she made 12 knots per hour, and when large ships were pitching violently about, her great mass was scarcely moved by the waves. When the *Great Eastern* was commenced a few years ago, the SCIENTIFIC AMERICAN expressed the opinion that her motion would be comparatively easy on the sea; that the waves would have but little effect upon the hull, so as to cause sea-sickness among her passengers. The *Nautical Magazine* took this opinion up, and pronounced it erroneous. Of course, it will require a voyage across the Atlantic to test fully the correctness of this opinion; thus far, however, it seems to have proved reliable.

The *Scotia*, a new paddle-ship to be built for the Cunard Company at Glasgow, has been designed for a considerable period; but, with Scotch, caution her proprietors and engineers have waited to see what new engineering facts might be developed in the construction of the *Great Eastern*. All the working-drawings are now prepared, and the construction of this ship will proceed with all the dispatch possible, and it is asserted that it will not be surpassed for speed by any steamer whatever.

The builders' strike in London appears to be drawing to a close, the operatives having been reduced to a very low state for want of funds; still they have mostly refused to sign the conditions given them by the master-builders, namely, to repudiate all connection with the Trades' Societies. The London *Mechanics' Magazine*, which has denounced strikes as injudicious and injurious, says that these operatives are more deserving of sympathy than those men who have acquired accumulated capital by means of the toil of the artisan, and who have seemed to glory in seeing their workmen starved, so that they might be vanquished.

The trade at Sheffield is in a very prosperous condition; the demand for crinoline steel is very great, and much of it is for the American market. "New York belles cut a swell which throws the portly dimensions of lusty English ladies far into the background." So says Charlie Mackay in his "Notes on America," just published.

We omit our usual table of the English metal market, because the change in prices is so little varied from last week that we have occupied the space with more than the usual amount of other foreign matters.

### New York Markets.

COAL.—Anthracite, from $4.50, to $4.75 a $5.

COPPER.—Lake Superior ingots at 23c. per lb for cash; new sheathing, 26c.

COTTON.—Ordinary—Uplands, 9c. per lb.; Florida, 9c.; Mobile, 9c.; New Orleans and Texas, 9¼c. Middling—Uplands and Florida, 11⅝c.; Mobile, 11¾c.; N. O. and Texas, 12c. Middling fair—Uplands and Florida, 12⅜c.; Mobile, N. O. and Texas, 13c. Fair—Uplands and Florida, 12¾c.; Mobile, 13½c.; N. O. and Texas, 14c.

FLOUR.—State, superfine brands, $4.60 a $4.75; Superfine Western, $4.55 a $4.75; Extra Illinois, Indiana and Michigan, $4.85 a $6.35; Extra Ohio, $5.65 a $6.75; Extra Genesee, $5.50 a $7.25; Inferior to Choice Missouri, $5.25 a $8.50; Extra Kentucky and Tennessee, $5.40 a $9.

GLASS.—American Window—First, second, third and fourth qualities, per 50 feet: 6 by 8 to 8 by 10, $3.50 a $2.75; 8 by 11 to 10 by 15 $4 a $3; 10 by 16 to 12 by 18, $4.50 a $3.25; 12 by 19 to 16 by 24, $5.25 a $3.50; 16 by 25 to 20 by 30, $6 a $4; 20 by 31 to 24 by 36, $8 a $4.50; 25 by 36 to 30 by 44, $9 a $5. These prices are subject to a large discount.

HEMP.—American undressed, $140 a $150; dressed from $190 a

$210. Jute, $95 a $90. Italian, $2.75. Russian clean, $210 a $215 Manilla 6¼c. per lb.

INDIA-RUBBER.—Para, fine, 56c. a 60c. per lb.; East India, 40c. a 43c.

INDIGO.—Bengal, $1 a $1.50 per lb.; Manilla, good to prime, 55c. a $1.10; Guatemala, $1 a $1.15.

IRON.—Anthracite pig, $23 a $24 per tun; Scotch, $22.50 to $23; Swedish bar, ordinary sizes, $8750 a $90; English refined, $53 a $54; English common, $43 a $45; Russian sheet, first quality, 11c. a 12c. per lb.; English, single, double and treble, 3⅛c. a 3⅞c.

LEAD.—Galena, $5.75 per 100 lbs.; German and English refined, $5.70; bar, sheet and pipe, from 6c. to 6¼c.

LEATHER.—Oak slaughter, light, 33c. a 35c. per lb.; Oak, middle, 33c. a 35c.; Oak, heavy, 32c. a 34c.; Oak, crop, 37c. a 40c.; Hemlock, middle, California, 22c. a 23½c.; Hemlock, light, California, 22½c. a 23c.; Hemlock, heavy, California, 21½c. a 22c.; Hemlock, hsavy, 20c. a 21c. Patent enameled, 16c. a 17c. per foot, light. Sheep, morocco finish, $7.50 a $8.50 per dozen. Calf-skins, oak, 57c. a 60c.; Hemlock, 56c. a 60c.; Belting, oak, 32c. a 34c.; Hemlock, 28c. a 31c.

LUMBER.—Timber, white pine, per M feet, $17.50; Timber, yellow pine, $35 a $36; Timber, oak, $18 a $28; Timber, eastern pine and spruce, $17,50; White Pine, select, $25 a $30; White Pine, box, $14 a $18; White Pine, flooring, 1¼ inch, dressed, tongued and grooved, $24.50 a $25; Yellow Pine, flooring, 1¼ inch, dressed, tongued and grooved, $29 a 32; White Pine, Albany boards, dressed, tongued and grooved, $20 a $21; Black Walnut, good, $45; Cherry, good, $45; White Wood, cherry plank, $42; Spruce Flooring, 1¼ inch, dressed, tongued and grooved, each, 22c.a24c.; Spruce Boards, 15c. a 17c.; Hemlock Boards, 12½c. a 14c.; Hemlock Joist, 3 by 4 inch, 12½c. a 14c.; Shingles, cedar, per M, $28 a $35; Shingles, cypress, $12 a $25; Staves, W. O. pipe, light, $55 a $58; Staves, white oak, pipe, heavy, $75 a $80; Staves, white oak, bbl. culls, $20; Heading, white oak, hhds., $65.

NAILS.—Cut at 3c. a 3¼c. per lb. American clinch sell in lots, as wanted, at 5c. a 6c.; wrought forcign, 3¾c. a 3½c.; American horse-shoe, 14½c.

OILS.—Linseed, city made, 58c. per gallon; whale, bleached spring, 58c. a 55c.; sperm, crude, $1.25 a $1.28; sperm, unbleached spring, $1.35; lard oil, No. 1 winter, 87c, a 92c.; extra refined rosin, 30c. a 40c.; machinery, 50c. a 100c.; camphene, 45c. a 47c.; coal, refined, from $1.12 a $1.50; olive, $1 a $1.05.

RESIN.—Common, $1.60 per 310 lbs. bbl.; No. 2, &c., $1.70 a $2; No. 1, per 280 lbs. bbl., $2.25 a $3; white, $3.25 a $4.50; pale, $5.50.

SPELTER plates, 5¼c. a 5½c. per lb.

STEEL.—English cast, 14c. a 16c. per lb.; German, 7c. a 10c.; American spring, 5c. a 5½c.; American blister, 4½c. a 5½c.

TALLOW.—American prime, 10½c. to 10¾c. per lb.

TIN.—Banca, 32½c. a 33c.; Straits, 30½c.; plates, $7.50 a $9.25 per box.

TURPENTINE,—Crude, $3.62½ per 280 lbs.; spirits, turpentine, 46c. per gallon.

ZINC.—Sheets, 7¼c. a 7½c. per lb.

The foregoing rates indicate the state of the New York markets up to September 29th.

There is but little difference in the prices of this week from those of the last. Cotton has been inqured after moderately, and prices are favorable for purchasers. The sales of flour have improved, the demand for southern being quite lively.

Crude turpentine has been more sought after. This business is of immense importance to our country, as we supply not only ourselves, but England, with this useful article; also with the residuum of distillation (resin) which is so much employed in soap-making, and in the manufacture of varnishes. The following is the quantity of turpentine and resin which has come into New York since January 1, up to the 27th ult:

| | Receipts. | Exports. |
|---|---|---|
| Crude turpentine, bbls..... | 75,484 | 71,331 |
| Spirite turpentine, bbls..... | 108,883 | 53,594 |
| Resin ..... | 554,125 | 446,282 |

The demand for crude sperm oil has been more active. Since January 1st up to the 26th ult., 75,598 barrels of sperm have come into the city, and 188,579 barrels of whale oil, also 1,774,900 lbs. of whalebone.

The wool trade has been good for the week past. Domestic grades have been much sought after by manufacturers, and holders appeared not too anxious to sell. These are good signs for our manufacturing interests. The receipts of domestic for the week were 2,805 bales, of which no less than 1,798 were from San Francisco, which appears to be a great wool country; the sheep being more prolific than in any other portion of our continent. The prices have ranged from 33 to 55 cents per pound, and some selected lots as high as 60 to 62. The California fleeces ranged from 20 cents, unwashed, to 35 cents. Texas is also becoming a great wool-raising country. In Boston the price of wool has advanced one cent per pound on the better qualities. The late news from Europe are favorable for an advance on wool, and probably this has somewhat stimulated our markets.

CALIFORNIA.—We learn from our San Francisco exchanges that good California flour is selling at from $6 to $8 per barrel; Collins' axes, at $12.50 to $13 per dozen; cut nails, at 4 cents per pound; Yankee painted pails (three hoops), at $2.37½ per dozen; Scotch and American pig iron, at $32 per tun; Banca tin, at 38 to 40 cents per pound; Copper, at 25 cents per pound.


ISSUED FROM THE UNITED STATES PATENT OFFICE

FOR THE WEEK ENDING SEPTEMBER 27, 1859.

[Reported Officially for the SCIENTIFIC AMERICAN.]

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

### 25,553.—Abel Austin, of Altona, Ill., for an Improved Churn:

I claim the arrangement of the shaft, a, cranks, a a′ a″, dashers, D E E, handles, D′ e e, links, b b b, springs, c c c, box, i i, spring, g, and lid, F F′, together, the same being connected, combined and constructed, substantially as and for the purpose described.

### 25,554.—William B. Barnard and Edmund Jordan, of Waterbury, Conn., for an Improved Rotary Blower:

We claim the diaphragm, l, in combination with the revolving propeller or propellers, k, to defiect the blast to the mouth or opening, f, as the blower revolves in the case, e, substantially as set forth.

### 25,555.—Elbridge G. Belknap, of Philadelphia, Pa., for an Improved Camp Stool:

I cliam the combination of the case and the seat frame with the swivel blocks, braces and connecting-rod, the whole being arranged substantially in the manner specified and described.

### 25,556.—Lewis Reese Carpenter, of Lancaster, Ohio, for an Improvement in Seed-planters:

I claim the arrangement of the beam, A, handles, C C, braces, D D, furrowing scraper, E, and seed-box, F, with the planting slide, H, lever, N, wheel, S, and covering scrapers, L L, the whole being constructed for joint operation as described, for the purpose set forth.

### 25,557.—Edwin S. Collin and Thos. N. Read, of Aspen Wall, Va., for an Improvement in Machines for Preparing Tobacco for Pressing:

We claim the arrangement of two, three or more pairs of progressive pressure-rollers with each other, substantially in the manner and for the purpose set forth.

We also claim combining a series of oil vessels and oiling pads with the aforesaid pairs of pressure-rollers, substantially in the manner set forth.

### 25,558.—John Critcherson and Eri S. Moulton, of Boston, Mass., for Improvement in Machines for Splitting Welts:

We claim the beveled grooves, n and x, constructed and arranged in reference to each other, on the cylinders, C and D, and operating in combination with the adjustable cutter, H, substantially as set forth and for the purposes described.

### 25,559.—Tobias Crumling, of Hellam, Pa., for an Improvement in Harvesters:

I claim the arrangement and combination, as shown and described, of the independent platform, K, with the frame, L′, belt, M′, and driving axle, G, for the purpose set forth.

[This invention relates to an improved grain and grass harvester, and consists in a novel arrangement of the main frame, cutting device, platforms and a rake, whereby the desired work may be done in a very efficient manner, the machine working equally well either in the capacity of a reaper or mower.]

### 25,560.—Geo. S. Curtis, of Chicago, Ill., for an Improvement in Reels for Harvesters:

I claim the employment of sliding heads, B, and pivoted arms, C, and bars, E, in combination with the reel shaft, A, and beaters, D, substantially as shown and described, so that the diameter of the reel can be expanded or contracted, as and for the purpose set forth.

[This invention consists in constructing the reel in such a manner that it will admit of being folded or closed in a compact state when not required for use or in case of transportation, and also admit of being readily unfolded and adjusted firmly on its shaft, so as to be of greater or less diameter, as may be required, when applied to the harvester to perform its legitimate work.]

### 25,561.—Jacob D. Custer, of Norristown, Pa., for an Improvemeut in Harvesters:

I claim, first, The main shoe, A A A, constructed in the manner described, in combination with bars, J J, of main frame and supporting-bar, T, arranged and operating in the manner described for the purpose specified.

Second, The caster wheel, L, in combination with the lever, M, and adjustable plate, N, when the parts are constructed, arranged and operated in the manner described for the purpose specified, substantially as set forth.

### 25,562.—J. S. Davison, of Cranberry, N. J., for an Improved Telegraphic Cable:

I claim arranging a series of loose metal strips, a, in a coil, A, or its equivalent, substantially as and for the purpose described.

[Telegraph cables, especially for deep water, ought to be so constructed that the conductor is not affected by any strain to which the cable may be subjected. This object is fully obtained in Davison's cable, the conductor of which consists of a series of loose strips of copper wire, hooked or otherwise united to a coil which forms a part of the protection of the conductor, so that, by stretching the cable, the circuit remains unbroken.]

### 25,563.—Eben Eaton, of Cincinnati, Ohio, for an Improved Bedstead:

I claim the construction of bed-posts with the wedge-formed part and the square piece attached, so as to form a shoulder to receive the rail, in combination with the bottom or platform of a bedstead, with the rail formed so as to fit the posts described, and all permanently connected together by means of cross-pieces, substantially as specified.

### 25,564.—G. D. Foote, of Danbury, Conn., for an Improvement in the Mode of Coloring Woolen Hats:

I claim the described process of restoring the color of the hats after they have been dipped in the stiffening and rubbed off with sand paper by applying the hot dyeing liquid, substantially in the manner specified.

[The object of this invention is fully expressed by the claim. By dipping the hats in the stiffening, and when they are rubbed with sand paper, their color changes. It is therefore of great importance to restore the color by a simple process, which furthermore gives a better appearance to the hats.]

### 25,565.—John Fritz and Geo. Fritz, of Johnstown, Pa., for an Improvement in Rolling Mills:

We claim the application to each of the pairs of drawing or forming rolls of a feed roll such as described, and driven by gearing or other machinery, and turning in the same direction with said drawing or forming rolls, for the purpose of carrying and feeding into them the pile or bar of heavy iron, substantially as described.

### 25,566.—Harvey Guild, of New Orleans, La., for an Improvement in Apparatus for Washing Gas:

I claim the arrangement of the water-pipe, G, and rose, H, within the inlet pipe of the wash-box, A, in combination with the perforated plate or diaphragm, F, at the junction of the inlet pipe, with the wash-box, substantially as described.

[This invention consists in a certain arrangement of a water-pipe and rose within the inlet pipe of a gas-condenser, in combination with a perforated plate at the junction of the inlet pipe of the wash-box, whereby the gas is brought into very intimate contact with showers of water and caused to pass through small holes along with the water, and the gas is caused to be presented to the action of very extensive and constantly-changing surfaces of water, and very perfectly washed and purified.]

### 25,567.—N. E. Hale, of Nashua, N. H., for Improved Belt-hook, Pliers and Punch:

I claim, first, The combinationation of the roughened surfaces, O and H, with the triangular wedge end, G, arranged in relation to each other, substantially as and for the purposes set forth.

Second, The combination of the jaws, E F, with the punch, J, roughened surfaces, O H, and wedge end, G, the whole being constructed and arranged as and for the purposes set forth.

### 25,568.—John Howarth, of Salem, Mass., for an Improvement in the Method of Distilling Oil from Coal:

I claim forming oleaginous vapors from coal or other substances yielding pyrogenous oils, by passing, through the material to be acted upon, a current of superheated steam, in combination with steam direct from the boiler, substantially in the manner and for the purpases set forth.

I also claim forming oleaginous vapors from coal or other substances yielding pyrogenous oils, by passing through the material to be acted upon air combined with superheated steam, substantially in the manner and for the purposes set forth.

### 25,569.—Tyler Howe, of Cambridgeport, Mass., for an Improved Bedstead Slats:

I claim the described bed slat, consisting essentially of the lifter, A, in combination with the slat, constructed and operating in the manner substantially as set forth.

Also the construction in the ends of slats, by which they are connected with the bedstead or springs, as shown by C and D, and as described.

### 25,570.—Edward C. Knight, of Philadelphia, Pa., for an Improved Mode of Arranging Couches in Railroad Cars:

I claim the arrangement of couches in railroad cars by means of the double-hinged rod, C C, constructed as described, in such a manner that the couch, when not in use, may be folded up against the ceiling and retained there by means of a button or other suitable device, substantially as described.

### 25,571.—W. Kuhlenschmidt, of New York City, for an Improved Screw-wrench:

I claim the arrangement and combination of the conical disk, E, with the helical groove, c, the spring, d, the movable jaw, C, and the shank, B, to operate substantially as and for the purpose set forth.

### 25,572.—James Allen Lowe, of New York City, for an Improvement in Molding Water-traps:

I claim the application of a metallic core, constructed and operating substantially as described, to cast water-traps.

### 25,573.—James L. Meafoy, of Middleton, N. Y., for an Improvement in Cooking-stoves:

I claim the cylindrical fire-chamber, F, air-chamber, G, communicating with the fire-chamber and the heater-chamber, I, when combined and arranged relatively with each other and the oven, B, for the purpose set forth.

I also claim, in combination with the fire-chamber, F, air-chamber, G, and heater-chamber, I, arranged as shown, the perforated plate, K, placed in the flue, C, relatively with the fire-chamber, for the purpose set forth.

[The object of this invention is to economize in the consumption of fuel by a very simple arrangement of means, and at the same time render the stove more convenient and desirable for general use than all others that have passed under our observation. The invention consists in having the fire-chamber of cylindrical form placed in the front part of the stove and encompassed by an air-chamber communicating with the upper part of the fire-chamber by small orifices, and having a water-heater adjoining the air-chamber, the above parts being placed directly in front of the oven and also used in connection with a perforated and equalizing draught plate, whereby the desired end is attained.]

### 25,574.—Z. N. Morrel, of Cameron, Texas, for an Improvement in Machines for Distributing Fertilizers:

I claim the combined arrangement of the single side wheel, D, distributing-wheel, C, regulating-slide, I, revolving-arms, L, boot, K, set screw, J, shares, d d, cog-wheels, E1 E2, draft-rod, S, sprocket-wheels, F1 F2, roller, H, and chain, G, in the manner and for the purposes set forth.

### 25,575.—George Mowbray, of Green Point, N. Y., for an Improvement in Process of Distilling Oils from Coke:

In the manufacture of coal-oils and other pyrogenous oils, by exposing the coal, or other materials, to the products of combustion generated in a separate furnace, I claim igniting said products of combustion, previous to admitting the same into the distilling kiln, by admixture of a sufficient proportion of air, to burn the oxyd of carbon into carbonic acid, substantially as described and for the purposes set forth.

### 25,576.—Geo. Munger, of New Haven, Conn., for an Improved Writing-tablet:

I claim a new article of manufacture, to wit, an argillaceous surfaced wood writing-slate, which is formed by uniting several layers of veneering or thin wood together, so that their grains run antagonistic to one another, and then coating the exterior surfaces of the compact mass with a composition of slate, emery, or other similar argillaceous material, substantially as and for the purposes set forth.

### 25,577.—S. D. Newbro', of Lansing, Mich., for an Improved Bed-spring:

I claim the employment of the oblong plates, a a a, whether made of wood or of metal, or any other suitable material, when the same are secured together, substantially as and for the purpose set forth.

### 25,578.—Rufus Nutting, of Randolph, Vt., for Improved Manufacture of Wire Cloth:

I claim compressing wire cloth by passing it between rollers, suitably constructed, or by equivalent means, whereby its surfaces are rendered smooth and even, in the manner and for the purposes substantially as specified.