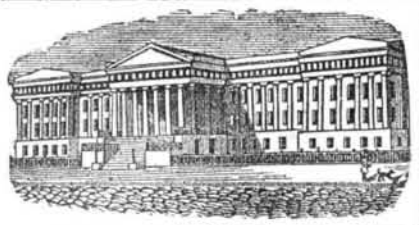

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LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING APRIL 29, 1851.

To I. L. Cady, of New York, N. Y., for improved compound Metallic Door, for vaults, safes, etc.

I claim a door or wall, for a vault or safe, made by securing to each other, at a certain distance apart, two plates of sheet metal provided with a rim or curb, and filling the vacant space between them with immaleable cast iron, poured in while melted, substantially as described.

To Oliver Etnier, of Shirley Township, Pa., for improvement in Winnowing Machines.

I claim placing the screen in an inclined position above the fan, and extending the whole length of the machine, by which the wheat is thoroughly sifted before being acted on by the blast, in combination with the direction of the blast, at right angles to the screen, as above set forth.

To J. C. Smith, of Stoughstown, Pa., for improvement in Spring Saddles.

I claim the pommel spring, in combination with the seat spring, substantially as set forth.

I also claim the method of suspending the stirrups, by connecting them with the same springs which support the seat, whereby the elevation and depression of the one is simultaneous with the elevation and depression of the other.

To J. G. Goshon, of Shirleysburgh, Pa, & Wm. H. Towers, of Bucyrus, Ohio, for improvement in apparatus for giving ease to the arms in writing.

We claim constructing an arm supporter or rest, so formed and shaped as to fit the arm below the elbow joint, and serve as an elastic or flexible support or rest, on which the arm of the penman is supported and balanced and permitted to move or turn with the motion of the arm, with the utmost freedom and ease to the writer, by which all numbness, contraction of the muscles of the fingers, and crampness or stiffness of the arm, is effectually prevented and the arm rendered free in its movement, and under the complete control of the writer, as described.

To Ira H. Smith, of Wolcott, Conn., for improvement in machinery for making matches.

I claim, first, the mode of feeding in the plates of wood, by means of the feeding apron with its cleats, spring, pulley, and rollers.

Second, the mode of separating and dipping the splints, by means of the grooved cylinder, cutter, endless bands, and revolving wheels.

To R. G. Babcock, of New London, Conn., for improved Horse Shoeing Machine.

I claim, in combination with a rotating travelling draw roller, adjustable pattern, and clamping toolfor forming the shoe, the gauge plate for holding up the roller, so as to allow it to return over the shoe thus formed and smooth down the feathered edges raised by the chamfering tool, as described.

To L. W. Boynton, of South Coventry, Conn., for improvement in Bats for felting.

I claim preparing the web for felt fabrics, by the introduction of layers of flock between or upon the layers of wool, without passing the flock through the carding machine, but by preparing it in a separate machine, and introducing it immediately from that machine on to the web of wool, while it is passing from the carding machine, in the manner substantially as described.

And I also claim the combination of the endless apron, which feeds the flock to the cylindrical brushes, with the series of cylindrical brushes by which the flock is taken up from the inner extremity of the endless apron, and, passing through the series, is prepared and sent down through the spout or conductor, and deposited on the web of wool, as before described, when the same is constructed and combined, substantially as described.

To L. L, Gilliland, of Dayton, Ohio, for improvements in Splint Machines.

I claim a cutter wheel, constructed substantially as herein set forth, to split, point, and gauge the size of match splints, in combination with the method of preventing the splitting knives from cutting across the grain of the wood, by supporting the block upon a stock, which is constructed to turn, as herein set forth, to present the grain of the wood, where the splitting knife is acting in line with the plane in which the knives revolve.

To Wm. Mt. Storm, of New York, N. Y., for Flexible Hose or Float, for supporting vessels.

I claim, first, a plan of supporting a vessel, in whole or part, upon or by means of a flexible, movable, endless hose or air-float, or on an endless movable chain of flexible, buoyant compartments, for the purposes set forth.

Second, I claim making my flexible hose air-float, or its equivalent, collapsible, for the purposes herein set forth.

Not limiting myself, in or by these claims, to any particular forms or arrangement of the buoys or floats, &c., so long as the peculiar features of my invention, as described and claimed, are substantially fulfilled.

RE-ISSUES.

To Frank Cheney, of Manchester, Conn., for improvementin machinery for doubling, twisting, and reeling thread. Originally patented Oct. 9, 1847.

I claim the described combination of doubling, twisting, and reeling mechanism, or elements, constructed, applied, and operating together, substantially as herein described, whereby I am able to double, twist, and reel each thread by the same machine, substantially in the manner specified.

DESIGNS.

To Thomas Ball, of Boston, Mass., for Design for Bust of Jenny Lind.

(For the Scientific American.)

Practical Remarks on Illuminating Gas.

[Continued from page 262.]

Having now traced this aeriform fluid through its various and diversified mutable course, from the crude coal to the pure dispenser of light, it may not be improper for me to recapitulate a little and speak of the available products accruing from the destructive distillation of coal. In the first place I would call the reader's attention to the residuum remaining in the retort after the gas has been extracted; this residue is a carbon of dense granular composition, and is called coke. This is the most valuable of the secondary products of a coal gas establishment. It bears the same relation to coal as does charcoal to wood —it is excellent for many purposes, and is extensively used both in the arts and manufactures; for domestic use it is unobjectionable, and may be burnt both in the drawing-room and kitchen with much economy and comfort. Coke has become a very general favorite as a fuel for family use within a few years, wherever it has been introduced; the demand at gas manufactories is constantly increasing, as its merits become better known and its true value appreciated, and the result has been that all coke manufactured finds a ready market at good remunerating prices. The price of coke generally bears a proportion to the cost of the coal from which it is produced; and in some works the price is fixed from time to time, to cover the price of the coal used to make it, and the other residuums considered of no value for sale. As a fuel, where intensity of heat is requisite, coke is unequalled. In the smelting of ores at Silisia, it was found, in one experiment, that 1 measure of coke was equal to 3 measures of charcoal; and in another experiment, that 1 measure of coke equalled in effect 5 measures of charcoal or 3 measures of pit coal.

Coal, although it decreases in weight while undergoing distillation, increases in bulk; 1 measure of coal producing 1½ measures of coke: Pictou coal increases about 20 per cent. in bulk while undergoing decomposition.

Coke is sometimes, though rarely, found in nature. A porous anthracite or natural coke has been discovered in Eastern Virginia, and from its position, it is thought that its presence must be ascribed to the thorough carburization and dessication of the vegetable matter before it was sealed in by the overlaying strata. Coke is then found to be pit coal deprived of its volatile ingredients by charring, whereby it is converted from a solid state into a light spongy mass.

Coke, as soon as manufactured, should be housed or placed under cover in some sheltered position, as owing to its great degree of porosity, it absorbs moisture from the atmosphere, which it becomes necessary to expel before a perfect combustion can be obtained, and which decreases the amount of heat generated; or rather, much of the heat derived from the coke is required to convert the water into steam, and thereby renders it unsuitable for giving the best attainable results.

Another secondary product is Coal Tar :—this is a black oily fluid, much resembling the vegetable tar in appearance, but has a much more pungent odor. This substance may be consumed in the fires under the retorts with advantage; when this is done, it is necessary to introduce a small quantity of water at the same time, as, owing to the excess of carbon contained in the tar, it is necessary to produce a flame, to give it a due proportion of hydrogen, and also a supply of oxygen for its support; and for this purpose water is used, (that containing both of these elements,) and the whole of its heating properties are made available; when this method is judiciously employed, it is capable of giving not only a great amount, but a very intense heat. The quantity required to carbonize one chaldron of coal varies from 24 to 27 gallons; 3 gallons being considered equal in value to one bushel of coke. Coal tar is used when boiled and mixed with oil, as a black varnish, for the protection of iron against oxidation; it possesses a beautiful lustre and serves as an excellent preservative; the most desirable feature in this varnish is, that it can be applied to red hot surfaces without injury, while other varnishes would crack off and lose their lustre. It has also been introduced, when mixed with any silicious substance, as a cement for floors, roofs, walks, &c. It is very desirable, when used as a floor, particularly in store houses where woolen goods are deposited, not only for its great durability, cheapness, and freedom from moisture. but the odor which is naturally attached to the tar, serves as an excellent preservative against moths. As a roof it is very durable, and is impermeable to water; and when employed as walks, is a most excellent substitute for stone or brick, its durability being fully equal to either of these substances, and in point ofcheapness, far superior. It is not acted upon injuriously by the frost, as its elasticity allows it to yield without damage. It has been thoroughly tested, and its superior excellence is acknowledged by all who have used it.

Ammoniacal Liquor is another valuable secondary product, which is collected in passing over, upon the surface of the coal tar. It is highly charged with ammonia; 4 oz. of carbonate of ammonia have been produced from one gallon of this liquor. Its odor is exceedingly pungent. This liquor to the agriculturist must be of great value, for it is well known that carbonic acid, water, and ammonia contain the elements which support both animal and vegetable life, and when this is applied it supplies the deficiency of any of these elements, for the want of which his creps would fail, This liquor is also useful for the manufacture of sal ammoniac or chloride of ammonium The ammonia which chrystallizes in the various parts of the apparatus, and may be collected in quantities, as salts of ammonia or carbonate of ammonia may be used in preparing the popular sudorific called spirit of hartshorn.

The refuse lime from the purifiers is also a valuable product, and at some works it is sold at prime cost, as a manure, being considered, from its strong impregnation with ammonia, as being improved in quality for that purpose.

Another material which has been introduced for the manufacture of illuminating gas, is Oil, although to a very limited extent as compared with the use of coal. The oils are divided into two classes, "volatile" and "fixed." The volatile oils are so called because they are evaporable at a low temperature without decomposition, and because in them the odor or fragrance, or, as the old chemists termed it, the essence of the vegetable consists. Oils of this kind are generally obtained from vegetables, and are mainly fluid. The fixed oils are so called because they are incapable of being volatized without detomposition. All animals, except those included in the class of insects, contain oil; in the herbiferous animals it is hard; in the carniverous and in birds it is soft, and in fishes it is liquid. The latter class only will command our attention at the present time, it being the only oil which is used for gas illumination on a large scale. Its principal elements are carbon. hydrogen, and oxygen.

Oil Gas.—When oil is brought to a high temperature it is decomposed into a gaseous mixture, and new combinations are formed, which consist of bi-carburetted hydrogen, carburetted hydrogen, and carbonic acid gases. The two first named are formed by the combination of carbon and hydrogen, in the first instance 4 parts of carbon unite with 4 parts of hydrogen, the atomic formula being H^4+C^4, while in the latter case 2 parts of hydrogen unite with 1 part of carbon, and have a formula H^2+C. The carbonic acid is formed by the combining of 1 measure of carbon and 2 measures of oxygen.

It would appear both inexpedient and superfluous to distil oil for the production of gas, when we consider that oil can be burnt in lamps without further preparation, and that it loses carbon by deposition in the retorts. The oils most commonly used for gas purposes are those whose impurities will not admit of their being burnt in lamps, such as the train oils and the sediment of whale oils, and consist of phocenic acid and oxide of glycerle, which form, by the incipient decomposition of the animal matters, and are the cause of the nauseous odor. The manufacture, therefore, is not so absurd as at first sight it appears, as it is the means of using up such materials for the production of light, as would otherwise be lost.

J. B. B.

(To be Continued.)

Mexican Cave.

A correspondent of the N. O. Picayune, in writing a description of an exploration of a mountain called Guieugola, about five leagues from Tehuantepec, gives the following account of the discovery of a cave in its side:—

After much hard climbing, near the top of a spur, we discovered a cave of a small entrance, and descended into it about seventy-five feet. From the top or roof of the cave we found suspended stalactites of limestone, some of which were of enormous size and of a brilliant snow white color. These stalactites, when struck by a hard substance, make a musical sound similar to that of an organ. In one part of the cave is a formation of them which very much resembles an organ, and is capable of producing as many different sounds. An apt musician could make beautiful music upon this natural organ. The general direction of the cave is downward, at an angle of about forty-five degrees. Asfar as we went there were several large openings or rooms, with a level floor, and passages from one to the other, varying from three to eight feet in diameter. How far it extends we do not know, as we did not explore it to the bottom. It has evidently at some period been inhabited, for we found several pieces of clay ware, one of which was in nearly a perfect state of preservatian.

Rapidity of the Nervous Current.

In a paper presented to the French Academy of Sciences, "On the rapidity of the propagation of the nervous agency in the spinal nerves"—Helmholts described at length some experiments of his, from which he concludes that the nervous irritation passed over a space of 50 to 60 millimetres (about two inches) in from 0·0014 to 0·0020 of a second. The experiments were upon frogs. The lower the temperature, the less appears to be the rapidity of the nervous agent.