IRON AND STEEL EXTRACTED FROM WASTE IRON CINDERS.

We have received a circular from A. L. Fleury, chemist, Franklin Institute, Philadelphia, in which he states that he has succeeded in extracting good wrought-iron and steel from the waste cinders of puddling and reheating furnaces, which have hitherto been considered a nuisance in their vicinity. He states that, from chemical analysis, he is assured that such cinders contain from 25 to 50 per cent of iron, combined with sulphur, silica, phosphorus, and alumina, forming a brittle compound. Near the large Iron Works at Troy, N. Y., thousands of tuns of these cinders are spread over the roads, and in every 100 lbs. there are about 35 lbs. of iron. By reworking this cinder with lime and charcoal, iron had been extracted, but it was invariably red-short (brittle at a red heat), as the sulphur, silicon, and phosphorum remained combined with the iron. Numberless unsuccessful efforts had been made to work this cinder economically. Mr. Fleury states that the problem of extracting the iron from the cinder and removing the impurities, was solved, by taking advantage of the chemical fact that unslacked burnt lime possesses the property of decomposing silicates during the act of being slacked with water. He mixed a proper quantity of powdered burnt lime, with fine ground iron cinder, wetted the whole with water, and exposed the mixture to the atmosphere. When this compound was dry, it was placed in a common puddling furnace, treated like pig iron, and 50 per cent. of wrought iron was obtained. This product, however, was somewhat red-short, as it contained traces of sulphur: but the impurity—Mr. Fleury informs us—he afterwards extracted, by mixing a chlorine salt with the water which he employed to wet the lime mixed with the cinder; and a good quality of iron, we are informed, can be invariably produced when the operations are properly conducted. It is also stated that the cost of preparing the cinder does not exceed $2 per tun, and the operation of smelting can be executed in puddling, blast, or other suitable furnaces. The invention has been patented in America and Europe.

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week. The claims may be found in the official list :—

Lock for Vehicles.—This invention consists in the employment of one or more hooks, constructed, arranged and applied to a wheel vehicle in such a manner that the driver may, from his seat, by a simple manipulation, cause the hook or hooks to engage with the back wheels of the vehicle so as to stop the rotation of the former, and also readily detach the hooks from the wheels when necessary. The invention is an improvement on the chain and hook originally used for locking the wheels of vehicles in descending eminences, and which were far more efficient than the modern brakes for checking the descent of a vehicle, but were abandoned on account of the trouble of getting in and out of a vehicle to lock and unlock the wheels. The object of this invention is to obviate this difficulty and render the adjustment of the hooks, to lock and unlock the wheels, equally as easy as the adjustment of the hand brakes now in quite general use. J. H. Lee, of Leavenworth, Kansas, is the inventor of this device.

Furnace Grate.—This invention consists in imparting to every alternate grate bar a reciprocating rectilinear in contradistinction to a rising and falling or oscillating motion, in such a manner that the coals are raked over and over by the toothed edges of the movable bars moving past the toothed edges of the stationary bars, and the entire fire is cleaned most effectually of all dust, ashes and small clinkers, and the clinkers are not liable to get under or between the bars, and prevent them from going back, which is the case when the bars have a rising and falling motion; and, furthermore, the coals are evenly distributed throughout the entire furnace. T. T. Holdsworth, of Brooklyn, N. Y., is the inventor of this improvement.

Machine for Dyeing, Bleaching and Washing.—The object of this invention is to furnish to hatters and dyers a machine for beating in their dyes, saving time and labor, and to bleachers a machine to clear and wash the goods of chemicals and acids, and replace the old dash wheel and rollers, and also to effect the washing of clothes in families in a novel and easy manner, by beating and rubbing them with a hammer constructed of short india-rubber tubes, or of bristles or any other suitable material, through which the water is conducted while the same acts on the goods or clothes. James Young, of New York city, is the inventor of this improvement.

Lightning-rod Inductor.—This invention consists in a certain mode of combining the holder with the insulator, by which it is enabled to be set at any angle necessary to adapt itself to the direction of the conductor, so that the same insulator may be made to serve equally well for walls or roofs. It also consists in a certain construction of the support, by which it is better adapted to roofs or slanting surfaces. Edwin Eagles, of Mamaroneck, N. Y., is the inventor of this improvement.

Mode of Soldering Cans.—The object of this invention is to effect the soldering of the joints of tin cans and other vessels of sheet metal, by dipping the joint into the melted solder, by which means the soldering can be effected more expeditiously, with a smaller quantity of solder; and the use of a cheaper solder, containing a larger proportion of lead, which would not follow a soldering iron, is permitted; and to this end it consists in the employment, for containing the melted solder, in which the joint is to be dipped, of a pan open in the center, and of such form as to contain the solder, in a channel of a form corresponding with that of the joint to be soldered, without allowing any other portions of the can or vessel but those in immediate proximity to the joint, to come into contact with the melted solder. It also consists in constructing such pan with a resting place for the can or vessel to be soldered to insure the dipping of all parts of the joint in the solder to a uniform depth. Herman Miller, of New York city, is the inventor of this improvement.

Going Back to Wood Again.

The price of coal has gone up so high that the New York railroads have commenced using wood, again, for the running of their locomotives, they finding it cheaper. Of course, this can only be a temporary return to this kind of fuel; coal must, from the nature of things, be permanently cheaper than wood. When locomotives first began to run, wood was the only fuel used upon them; but the enormous consumption of the engines soon relieved the face of the country of its forests, and every year wood grew dearer, till it became a question of economy to use coal. Coal has been so long used that the forests of New England and others of the older settled States, which were being rapidly denuded, having had a few years of comparative rest, are now becoming wooded again; and as temporary causes have raised the price of coal, it may be cheaper in States distant from the coal beds, to use wood. The New York Central is running its heavy freight trains with wood at the cost of twelve cents per mile. By experiment on the Baltimore and Ohio Railroad, it was found that one pound of Cumberland coal was equal to 2-55 pounds of pine wood. On the Reading Railroad it was shown that one pound of anthracite was equal to three pounds of pine wood. With this advantage, coal can be considerably higher than wood and be the cheaper fuel.—*Philadelphia Ledger.*

An Extraordinary Piece of Charcoal.

Dr. Rowell, of this city, has shown us a piece of charcoal which he uses to lay gold on to be annealed under the blow-pipe, and which he says he has had for thirty years, and that it has been on fire at least as often as once a day during the whole of that period. It is burned into the form of a shallow trough, but the cavity is not more than an inch in depth; showing that not more than one-thousandth part of an inch has been burned away at each ignition. It is probable that the gases so completely envelope the heated surface that, though this is red hot, no actual burning generally takes place. Dr. Rowell says that he finds great difference in different pieces of charcoal—some burning out very quickly, and he never had any other piece last nearly as long as this. This piece is of pine.

ISSUED FROM THE UNITED STATES PATENT-OFFICE

FOR THE WEEK ENDING AUGUST 18, 1863.

Reported Officially for the Scientific American.

*** Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to inventors, may be had gratis oy addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

39,539.—Process for Finishing Flannels.—Samuel Archer, Globe Village, Mass. :

I claim the process, substantially as above described.

39,540.—Rotary Pump.—Joseph Banks, New York City :

I claim, first, arranging the valves, G G', in slots or recesses, in the edges of the pistons, F, as and for the purpose shown and described

Second, The springs, b b', under the valves, G G', when the same are used in combination with pistons, F, connected by stems, s, in the manner and for the purpose substantially as specified.

[The object of this present improvement is to produce a tight joint between the edges and ends of the sliding pistons and the inner surface and heads of the cylinder of a rotary pump, by simple and easily-adjustable means.]

39,541.—Apparatus for Carburetting Gas.—J. A. Bassett, Salem, Mass. Ante-dated March 18, 1863 :

I claim the uniform carburation of gas under varying conditions of temperature, by the direct application of the hydro-carbon liquid to the burner, by the means shown, and the use, in combination, of the flanges, C1 C2, with the deflecting plate, D, or their equivalents, when used for this purpose, the whole arrangement operating together substantially as represented and for the object set forth.

39,542.—Firing Fuses by Electricity.—F. E. Beardslee, College Point, N. Y. :

I claim connecting the two conducting wires by a feeble conductor, substantially such as herein described, and placed in contact with, or in close proximity to the powder, substantially as set forth.

39,543.—Firing Cannon by Electricity.—G. W. Beardslee, College Point, N. Y.:

I claim combining with the barrel of the cannon, or other fire-arm, an insulated plug extending through the metal from the bore to the outside, substantially as specified, to be used with a cartridge having a fuse provided with two conducting wires, so that, when inserted in the bore, one will be in contact with the bore and the other with the insulated plug, as described.

39,544.—Gaiter Boot.—J. C. Breed and C. K. Bradford, Lynn, Mass. :

We claim, first, A gaiter boot, the two parts, A and B, being so constructed as to overlap each other from the sole to the top, with a row of eyelets in the one part directly over and parallel with a similar row in the other part, substantially as set forth and described.

Second, The sliding stop or fastener, f, in combination with the lacing arrangement, substantially as and for the purpose described.

39,545.—Railway Carriage.—N. F. Bryant, East Boston, Mass. :

I claim the automatic combination consisting not only of the chock rails, or their mechanical equivalents, applied to the roadway, and the chocks, or their mechanical equivalents, applied to the truck frame and its wheels, but the two tracks of different gages and their wheel-changing track, or the same and its flanch guide rails, the whole being arranged and so as to operate substantially as specified, and in combination therewith, I claim the projections or guides, n n, for the purpose specified.

39,546.—Polishing Machine.—Benj. Q. Budding, Milford, Mass. :

I claim the polishers, F, when arranged so as to be capable of simultaneous pressure against, and reciprocating rotary movement around, the edge or side of the heel, as set forth.

I also claim the combination of arms, G, springs, f, collar, I, and link, g, or their equivalents, for producing the motion of the polishers, against and away from the heel, as above described.

I also claim the arrangement of mechanism consisting of the plate, e, adjustable crank-pin, g3, joint, i, and crank wheel, k, or the mechanical equivalent thereof, operating together substantially as described.

I also claim combining a pressure mechanism, as shown by the arm, G, collar, I, link, g, shaft, J, rods, I' L, and treadle, K, or other suitable mechanism for producing the pressure of the polishers, with a shipping mechanism, consisting of lever, q, rod, p, or their equivalent, for their simultaneous operation, substantially as above set forth.

I also claim, in combination with the bearing plate, d, the springs, c c, operating in the manner and for the purpose as described above.

39,547.—Pack Saddle.—W. T. Campbell, Philadelphia, Pa. :

I claim, first, The two bars, A and A', connected together and maintained a given distance apart from each other by the wrought-iron arched pieces, B and B', as set forth.

Second, The piece, D, with its projections, d and d', the whole being applied to the two bars, substantially as described.

Third, The detachable pins, E, arranged on the two bars, substantially as set forth.

Fourth, The rings or eyes, M and N, arranged on the two bars for the reception of the binding rope, substantially as described.

39,548.—Hand Corn-planter.—Myron Case, Kasoag, N.Y.:

I claim the combination of the slide, i, provided with the inclined seed aperture, j, passing entirely through it, the recess, n, the back piece, c, below the seed reservoirs, the plates, f B, partition, h, and gum-elastic cut-off, k, placed within and attached to the seed box, A, the whole being constructed and arranged as and for the purposes specified.

39,549.—Cooking Stove.—A. E. Chamberlain nd Wm. Caven, Cincinnati, Ohio :

We claim, first, The deflector, K, in the described combination with the extended box top, G, boiler opening, J, and ventage nozzle, L, substantially as set forth.

Second, The construction of an extended box top with the incurved partitions, M M, between the heat chamber, G, and the boiling flue, B, for the provision of an extended stove top within the shortest practicable limits, as explained.

Third, We claim as a new and improved manufacture of extended top cooking stoves, the extended box top or chamber, G, having the incurved partitions, M M', deflector, K, supplementary boiler opening, J, and aventage nozzle, L, in the rear thereof, the whole being combined and operating together in the manner set forth.

39,550.—Machine for Amalgamating Precious Metals.—Ezra Coleman, San Francisco, Cal. :

I claim the use, in amalgamating pans, of a plate with grinding surfaces, top and bottom, said plate revolving between two other plates.

I also claim the use of a top plate, D, in amalgamating pans for the purpose of regulating the agitation of the pulp, the whole substantially as described and for the uses and purposes as hereinbefore set forth.