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LIST OF PATENT CLAIMS

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COUNTERSINKS—By A. G. Bachelder, of Lowell, Mass.: I claim an independent countersink, so constructed that it may be used on different sized bits, or other instruments for boring, for the purpose of countersinking, as well as gauging the depth of the hole at the same time it is bored, as described.

PUMP VALVES—By Nehemiah Dodge, of New York City: I claim an arched valve, formed by passing two planes, inclined to each other, through a semi cylinder of the same diameter with the bore of the pump, the sectional valve thus formed being hinged by one vertex, to the interior of the bore, for the purpose set forth.

WASHING MACHINES—By E. L. Evans, of Hartford, Ct.: I claim the combination of the rubber and rod or handle, for the opening or closing said rubbers by the same handle with which the rubbing is performed.

I also claim the combination of the rubbers E with the rubbers F, and bars, so that the two pairs of rubbers shall, each of them, grasp the cloth and rub it between them, as described.

INVALID LOCOMOTIVE CHAIRS—By T. S. Minniss, of Meadville, Pa.: I claim the combination of the wheel, axle, and shank on the end of the projecting arm, by which a central support is given to the frame within the disc of the wheel, the bearing in the hub being central with the bearing of the rim, permitting a free lateral movement to the wheel, without changing its point of support to the frame, and enabling the wheel to receive any shock on its rim, with firmness, while its plain surface is left unobstructed from the free movements of the crank and handle.

Also, the arrangement of the adjustable handle, which can be used to pull the chair, or as a guide in the hands of the invalid, when pushed by another, or changed to a crank of various length of stroke, to suit the invalid, when he wishes to propel himself with his own hands. The materials used, in the construction of said machine, being wood, iron, or other material, as convenience or fancy may dictate.

DITCHING MACHINE—By J. W. Morrill, of Hampton Falls, N. H.: I claim, first, the employment of the swinging cutters, in combination with the swinging spade, the whole being constructed, arranged and operated, as set forth.

Second, I also claim the combination of the swinging cutter, swinging spade, and lever, the whole being arranged in the manner specified.

[See engraving and description of this machine on page 12, Vol. 8, Sci. Am.]

FASTENING LEATHER BELTINGS—By Enoch Osgood, of Bangor, Me.: I claim the application of the tapering screws, with hooks and eyes screwed into the edges or ends of leather or belting, for the purpose of uniting the edges together, as described.

REGISTERING APPARATUS FOR PRINTING PRESSES—By J. W. Richards, of Hoboken, N. J.: I claim, first, the circular slotted plate let in flush with the face of the feed board, and fitted so that it can be rotated, to bring its radial slot into any desired position, to pass the registering point, as described.

Second, the spindle and arm connected to and combined with the circular slotted plate, so as to slide vertically, when actuated by competent mechanical means, and project the point through the slot in the plate, as specified.

MACHINE FOR MAKING WROUGHT IRON—By J. P. Sherwood, of Fort Edward, N. Y.: I claim the combination of a revolving cam drum, with the converging die stocks, moving in directions oblique to the axis, on which the cam drum revolves, the cams being constructed, as set forth, with two curved faces meeting at an angle, the whole arrangement being such, that dies moving at right angles to each other are operated by a single drum, without the intervention of rods or levers.

Also, the compound gauge and nipper which acts as a gauge to regulate the breadth of the nail blank, and also as a nipper, to hold it firmly, during the action of the pointing die, the same operating as described.

OPERATING AND CONTROLLING THE RUDDER OF STEAM VESSELS—By F. E. Sicksels, of New York City: I claim operating and controlling the rudder of a vessel, by combining with the steersman's handle and the rudder, with an engine so arranged as to move or hold it, with and against the force of the propelling engine, as described.

HOOK HEADED SPIKES—By J. H. Snyder, of Troy, N. Y.: I claim rolling wedge-pointed spikes between rotating dies, so formed that the face of one shall be the reverse of one face of the spike, when formed, and the face of the other die, to correspond, in the relation with the other face of the spike, as specified.

I also claim forming hook heads on spikes, by rolling from the point towards the head, to force the surplus metal towards the head, and then bending and giving the form required, by a lip on one of the dies, projecting beyond its face, so that it shall have an increased motion, by reason of its greater radius, to give the required form, as described.

Also, in combination with the dies for rolling the shank of the spike, making the heading lip, for forming the head, movable, by forming the said lip on the end of a bar, adapted to slide in the stock of the die, as specified.

Also, in combination with the rotating dies, the employment of the sliding cutter and carrier, as specified, for cutting from a rod the required lengths of rod, and carrying thereto the rotating dies, as specified.

And, finally, I claim, in combination with the rotating dies, the slides, for presenting and forcing the end of the rod into the rotating dies, to insure the proper position of the rod in the dies, as specified, for if the rod be not gripped by the dies at the proper time, there will be either too much or too little metal for the forming of the head.

MANUFACTURING MALLEABLE IRON DIRECTLY FROM THE ORE—By G. A. Whipple, of Newark, N. J.: I claim forcing down upon the iron ore, from the roof of the furnace, in the different stages of the process, as required, and on the different hearths, atmospheric air, either heated or cold, for the pur-

pose of decarbonizing the ore, and bringing the iron to nature or refining the same, and regulating the degree of heat, in the manner and for the purpose specified.

LOCOMOTIVE ENGINES—By D. Winder, of Xenia, Ohio: I claim the employment of three engines, connected with a three throw crank on the driving shaft, with the cranks arranged at equal distances apart on the circle, as specified, when this is combined with the employment of valves, stop cocks, or their equivalents, for letting the steam on both ends, or cutting it off from one end, to work the engines, on the single or double-acting principle, as specified.

PAINT COMPOUNDS—By C. F. Sibbald, of Philadelphia, Pa. Patented in England, Oct. 15, 1852: I claim the compound of tallow, plumbago, and charcoal, as set forth.

KNITTING LOOMS—By J. Mee, of Lowell, Mass. (assignor to J. Mee & John Rourke, of Lowell, Mass., & Gilbert Mackennon, of Portsmouth, N. H.): I claim the two sets of thread guides, in combination with two sets of needles, or their equivalents, and machinery for casting the loops, the whole being made to operate together, as specified, not meaning to claim the invention of a single set of thread guides in combination with two sets of needles, and machinery for casting the loops, as such is not new, but meaning to claim the invention of two sets of thread guides, in combination with two sets of needles, and machinery for casting the loops, as described, and operating together, to produce a ribbed knit fabric, as explained.

Also, causing the two sets of needles to work or move up or down, independently of each other, or in other words, so that one set may move downwards, or be moved out of the way of the thread guides, to be brought into operation on the other set, such improvement enabling me to bring or arrange the two sets of needles close together, and thus make closer work than can be produced when the two sets of needles are made to move in one direction (either up or down) at the same time.

WARP NET FABRICS—By John Mee, of Lowell, Mass. (assignor to John Mee & John Rourke, of Lowell, Mass., & Gilbert Mackennon, of Portsmouth, N. H.): I claim the new or improved manufacture of warp knit ribbed fabric, the same being made by means of two sets of hooks or needles, and two sets of warps or warp yarns, laid and looped together, and upon the said hooks or needles, as specified, and whether to exhibit ribs to equal or unequal widths on opposite sides of the fabric, as explained.

TONGUING, GROOVING, AND MOULDING CUTTERS—By J. M. Patton & W. F. Fergus (assignor to J. C. De Costa), of Philadelphia, Pa.: We claim arranging the cutting teeth on the periphery of a plate, inclined to the axis of its rotation, so that as they are rotated they shall correspond in reverse to the tongue and groove or moulding, to be formed thereby in the manner described.

PRINTING PRESSES—By James Young (assignor to J. W. Middleton), of Philadelphia, Pa. Ante dated Nov. 10, 1852: I claim, first, the combination and arrangement of mechanism for operating the inking rollers, as described.

Second, a false bed hinged to a stationary one, and the mode of fastening the form to the bed, as described.

Third, I claim the eccentric in combination with the platen, by means of which the latter can be adjusted while in motion, or thrown off, for the purpose specified.

DESIGNS.

COOKING STOVE—By S. H. Sailor (assignor to J. G. Abbott & A. Lawrence), of Philadelphia, Pa.

COOKING STOVE—By Julius Holzer, of Spring Garden, Pa., assignor to J. G. Abbott & A. Lawrence, of Philadelphia, Pa.

COOKING STOVE—By E. F. Robinson, of Boston, Mass.

Patent Case.

SLITTING MACHINERY—U. S. Circuit Court, New York; Judge Nelson presiding—T. B. Tappan against P. Ernst, for the infringement of a patent granted to Pearson Crosby, Nov. 3, 1841, and re-issued March 10, 1849, for improvements in the machine for re-sawing boards and other timber. The defendant alleged that his machines, commonly known as the Wells' machine, were no infringement of Crosby's patent. That Wells has a patent for his machine, &c.: that the defendant had done but very little work with his machines since the re-issue of Crosby's patent. The Jury, under the charge of the Court, found a verdict for the plaintiff for \$350. This case was decided on the 9th inst.

The Brain.

At a recent sitting of the French Academy of Sciences, it was attempted to demonstrate by a learned academician, from various careful experiments on the brains of animals, that the motive power of the respiratory mechanism, the vital point of the nervous system, is not bigger than the size of a pin's head.

In a paper in the "Monthly Journal of Medical Science," for March, 1853, Dr. Alex. Smith, of her Majesty's 32nd regiment, shows that the probable cause of the epidemic cholera, which afflicted the troops on the Island of Ceylon, during the past year, was the lead, which could be distinctly traced in the arrack and sugar which formed part of the supplies.

Dr. Spurgin, in his "Six Lectures on Materia Medica, and its relation to the Animal Economy," suggests that a most frequent application of therapeutical agents, in the gaseous form, by inhalation, in the way that we use chloroform, might be made available in very many diseases.

Scientific Apologists for the Caloric Engine.

As stated by us last week, the editor of a magazine professedly devoted to science and engineering, has come out in an editorial endorsing all the claims of those who state that a definite and small quantity of heat can produce an infinite amount of mechanical power, by using the same heat over and over again.

We do not mention the name of the editor because we believe he is sincere but defective in sound doctrine. He says, "There is a fundamental principle involved in the regenerator of Ericsson and Stirling, which, could it be employed without drawbacks or losses, would allow one ounce of coal per day to pump out the Niagara River and keep it dry. The principle is the transfer of heat from the outgoing to the incoming medium—the successive transfers of heat from a highly expansive medium to one which is less so and back again. Many practical men oppose this doctrine and contend that the losses by obstructing the passages are equal to the gain. This is a mistake. There is no fixed relation between these quantities at all, the loss by bad contrivances may be greater than the gain, or it may be less. Suppose a certain quantity of air, of iron, and of heat enclosed in a vessel, from which none could escape; if the quantum of heat could be first concentrated in the metal, then diffused in the air, then again in the metal, and so continually changed, would not the pressure on the inside of the vessel change with each transfer of heat and would not a piston fitting in an open end and properly balanced, be alternately driven out and in with a certain degree of force and without any escape of heat. This principle, theoretically, is able to multiply the present effect of heat to an indefinite extent. The principle of transferring heat from the outgoing to the incoming medium, is actually employed in the steam engines every day, and in every direction. Each unit of heat that is transferred from the exhaust steam to the feed water is so far a step in the direction which Ericsson and others are now diligently exploring."

Thus we have quoted from the article in question; it is a profundity to appear in any magazine in the month of May Anno Domino, 1853. Here it is broadly stated that a number of packages of wire gauze (the regenerator) has an inherent virtue (principle) in themselves to pump the Niagara river dry, with the use of one ounce of coal, in a day. This surpasses any work of animated nature which has come from the hands of the Great I Am; it goes far beyond the principle of life itself. This one ounce of coal and a few packages of wire gauze is certainly the introduction of the homopathic system into modern engineering; the results promised are, an infinite amount of power from a few scruples of heat. A man has lost his life by the bite of a gnat, but who would have thought that the Niagara river could be pumped dry by a snuff-box full of charcoal, or the Atlantic (ship) propelled across the Atlantic with a thimble full of anthracite; but so it seems, these things can be done by a wonderful principle in a few packages of wire gauze. It is really astonishing that this principle was not discovered long before this time, as it might have saved our country in five years, at least \$50,000,000 for railroads to the mining regions, and no less than \$500,000,000 in fuel.

When we commenced the Scientific American we found that the believers in perpetual motions, and the obtaining of power from levers were very numerous, but by spreading abroad a correct mechanical philosophy, we believe there is not one of our readers who now entertains any such notions. But the most insane perpetual motionist never uttered such an amount of extravagant nonsense as is contained in the foregoing paragraph. There is not an apprentice engineer in our land, we believe, that does not know what an ounce of coal can do in generating an expansive force. It can raise 50 tons of the water of Niagara river one foot high, and no more, by all the wire gauze regenerators or any other device on this terrestrial ball.

The example, upon supposition, which is adduced to prove this principle in the regenerator—working it out with a series of ifs—is really a droll one, and may well be compared to a new system of financeering, where-

by independant fortunes may very soon be acquired by taking any number of bank bills, exchanging them into gold, then into bills again, and so on *ad infinitum*, doubling the original value of the bills every time they are transferred. Our brokers may obtain a useful hint from this wonderful principle in the caloric regenerator.

There is no law better established than that there is a fixed relation between heat and its effects; a certain quantity of heat perfectly measurable, will produce a fixed amount of physical disturbance in another body, and no transfer from one medium to another (not even a modern spiritual medium) can make 491 deg. of heat in a cubic foot of air raise more than 2.160 lbs. one foot high. It is a great mistake to suppose that the unexpended heat in a steam engine, by transfer, embraces anything like the claim for this principle in the regenerator; as well might a claim be set up for a gain of power—as has been done—by the application of a fly wheel to an engine. The saving of unexpended heat in steam, and a gain of power by transfer are totally different doctrines which have been jumbled and confounded together by the author of the above.

There is an article in the last number of Silliman's Journal of Science and Art, by W. A. Norton, Professor of Civil Engineering in Yale College. It concludes with these words; "it must be admitted to be within the bounds of possibility that caloric ships may hereafter compete successfully with the celebrated ships of the Collins' Line, at least this conclusion seems to follow unless we have underated the weight of the caloric engines. It must be left to time to decide the question whether the full estimated power of the caloric engines can be actually obtained; and whether, therefore, the results which have been indicated, will, from being a mere ideal limit, ever come to an actual realization."

We like to see men and magazines devoted to science speaking out—showing their hands, that we may be able to form some opinion of their real, not professed qualifications; but we must say that Prof. Norton's conclusions have a kind of half hanged look about them, they exhibit a want of that confidence which we like to see displayed in a man conversant with science; they read as if he was not sure whether he was right or wrong. The calculations which he enters into in his article are mixed up with so many exceptions, such as "some little uncertainty" about this and that, that they are worse than useless to engineers in this part of the country. We have said, without any may-bes about it, that ships propelled by hot air, from the very nature of the element employed as the expansive motive agent, can never be successful, and never will compete with the slowest steamship now running, much less with the splendid Collins' Line. Time will decide who are the best judges.

Generation of Heat.

Dr. Alexander Mayer, of Paris, announces that he has been able to obtain heat for all the purposes for which heat is now used, by means of friction. An apparatus for this purpose will soon be exhibited to the public.—[Ex.]

[This is nothing new. Water has been boiled by friction frequently, but it requires more physical and mechanical force to raise the heat than the amount of power derived from it by re-action. The cheapest way of obtaining heat is by the combustion of fuel.

Fire Damp.

The investigations in England into the causes of the frequent explosions of the fire damp in the coal mines of that country, have developed the fact that the miners, while at work, are in the habit of lighting their pipes by sucking the flame through the wire gauze of the safety lamp, by which imprudence the dreadful explosions are often occasioned.

Cause of Insanity.

The "New York Medical Gazette" states that twenty-nine suicides, five murders, and two hundred and nine cases of insanity, are directly traceable to spiritual manifestations.

The figures, we believe, are greatly exaggerated, we have no confidence in them.