

on the cylinder the whistle will always be sounded at the proper time and place whether the locomotive be running forward or backwards. This invention strikes us as being one of a very valuable nature.

Improvement in Hat Felting—By Wm. Fuzard, of Charlestown, Mass.—The patentee is the inventor of a hat machine in which the felting is done by the employment of an endless apron moving over rollers, the hat bodies being placed between the folds of the apron. In that machine a plain apron was used.

The present improvement consists in corrugating or ribbing the apron so as to make it felt up the hat bodies better and quicker.—The ribs may consist of cords or other suitable material woven in or sewed on or between the folds, extending in right lines or angles across the surface of cloth.

Improved Hammer Wrench—By Philip Manus, of Brunswick, N. Y.—The invention consists in a new mode of sliding and securing the movable jaw, whereby the said jaw may be changed and made to accommodate itself to different sized nuts with greater facility than wrench hammers of the common construction.

Rolling Railroad Rails—By John W. Brown, of Mount Savage, Md.—This invention has for its object the rolling of the rails into such forms successively as to cause all parts of the rail to be submitted, in the rolling process, to an uniform degree of drawing and compression, thereby preventing the separation of the head and flange, making all parts of the rail of equal density, &c. The improvement enables rails to be made perfectly sound with crystalline iron in the heads, which is far superior to fibrous iron, as the latter laminates or peels off, as many of our readers will doubtless have noticed on roads that have been in use for some time.

The present improvement consists in forming a groove or cavity along the center of the base of the rail after the reduction to form the head has been, to a certain extent, effected by the rollers, but before the further reduction to form the neck is commenced. By the subsequent operation of the rolls the middle of the bar is reduced, to form the neck which brings the rail nearly to the proper shape, drives the metal towards the base, and fills the cavity in the base before mentioned. The above appears to be an important and highly valuable improvement.

Improvement in Valve Gear for Oscillating Engines—By William Stephens, Pittston, Pa.—The object of this improvement is to adjust the "lead" of the valve, and to give it more or less lead, as may be desired. It is an ingenious and apparently practical improvement. But in order to convey an understanding of the parts we should need diagrams.

Lathe for Prismatic Wood Work—By Henry C. Spalding, of New York City.—This invention relates to an improved lathe for turning polygonal formed articles, such as pianoforte and table legs, etc. The stuff is turned out into the desired form at one operation by an automatic arrangement of the several parts. The machine works with great rapidity, and does splendid work, so we are told.

Improved Windmill—Mr A. Lempcke, whose invention we noticed a short time since, desires us to say that his residence is at Pleasant Mount, Wayne Co., Pa., instead of Mount Pleasant.

Recent Foreign Inventions.

Fire Escape Bedsteads—T. Dawson, England, patentee. The inventor in describing this invention says:—

"I make the side frames of a bedstead of a tube, and enclose within it several other telescopic tubes; I connect one end of the tubes by a swivel or other suitable joint permanently to the bed posts, and to these elongating tubes (or tubular parts) I attach a sacking or net by means of rings or other appliances. In the event of fire the head posts are drawn up to the foot posts by connecting rods, through which they slide. The fire-escape sacking or net is made to overhang the window, and the same operation also dislodges the tubes from the foot posts, against which they rested, by a rod being run out of them. The tubes now no longer supported by the foot, take their in-

cline to the street, and are let down by unwinding a rope from the two cylinders, which act in such manner as to prevent the too rapid descent of the tubes and sacking. The persons escaping descend in the sacking to the ground."

New Arrangement for Screw Steamers—The *North British Daily Mail* states that A. Morton and E. Hunt, of Glasgow, have invented what they term "the parallel action Z-crank engine," by which the two cylinders can be placed on parallel lines with the shaft, and their piston rods yoked directly to it. This arrangement is held to be a great improvement over the present plan, which requires the cylinders to be placed athwart the ship—one on each side of the propeller shaft. By the new arrangement the piston rods of the engine have their thrust in a line with the length of the vessel, thus obviating transverse vibration, the use of common cranks, and allowing the machinery (if required) to be packed near the stern of the ship.

Egg Powder—W. C. Thurgar, England, patentee. The nature of this invention consists in taking fresh eggs, breaking them, and placing their matter in proper shallow trays, where they are subjected to a stream of moderately hot air to evaporate all the moisture. When perfectly dry they are reduced to powder in a proper mill, and are employed for the making of pastry, &c. The air for drying the eggs must not be allowed to exceed 130°; the object is to evaporate the moisture and not coagulate the albumen, so as to render the egg powder soluble in water. This manner of preparing eggs for market might be pursued by some persons in our distant rural districts with as much profit as preparing and drying fruit. We throw out this hint for the benefit of "all whom it may concern."

Musical Notation—W. Striby, London, patentee, has taken out a patent for a new system of musical notation, the object of which is to reduce all the musical clefs, scales, and systems to one single scale, or rather, a single system of scales. A new shaped set of clefs is adopted, by which a given note will retain the same relative position upon the staves for all instruments and clefs; and instead of using only five lines in a staff he employs a greater number, having one called a "union line," differing from the others in size or color to render it conspicuous, to enable a person to distinguish the position of the notes more readily. We are inclined to the opinion that this new method is an improvement.

Making Carmine—B. Wood, England, patentee. The following method of making carmine (the most beautiful red color) may be very useful to some of our artists, who have to pay a much higher price for this material than it would cost themselves to make it. Take 9 ounces of the carbonate of soda, and dissolve it in 27 quarts of rain water, to which are added 8 ounces of citric acid. When brought to the boiling point 1-2 lbs. of the best cochineal, ground fine, are added, and then boiled for 1-4 hours. The liquor is then strained or filtered and set by to cool.—The clear liquor is then boiled again, with 9-12 ounces of alum, for about ten minutes, and is again drawn off and allowed to cool and settle for two or three days. The supernatant liquor is then drawn off and the sediment which has fallen to the bottom is filtered and washed with clean cold soft water, and is finally dried by evaporating all the moisture. The result is fine carmine, which can be made into the finest red ink by dissolving it in a caustic solution of ammonia, adding a little dissolved gum arabic.

By the old plan of making carmine, no citric acid was used; the cochineal was simply boiled in soft rain water for two hours containing a minute quantity of carbonate of soda, then allowed to settle, and treated by remainder of the process described above. An improvement in the brilliancy of the color is obtained by adding about one-ninth part of the crystals of tin to the alum, using for this purpose a ninth part less of alum than the amount given above.

Monument to James Watt.

The citizens of Greenock, in Scotland, the native place of James Watt, are erecting a monument to his memory, and invite contri-

butions of materials from every country. A resident of Washington—a native of Greenock—has forwarded a beautiful block of Seneca marble, to be placed in the monument.

Notes on Ancient and Curious Inventions.—No. 2.

Connecticut—On March 10, 1663, the General Assembly of Connecticut passed an act for the encouragement of any person who would lay himself out for the discovery of any mines and minerals.

Slitting Mill—In 1716 an act was passed granting to Ebenezer Fitch & Co., the exclusive right to erect a slitting mill at Stony Brook, to slit and draw out iron rods for nail makers, and all other persons in Connecticut were forbid to erect slitting mills for 15 years, upon the penalty of being fined ten pounds per month.

Iron—Connecticut seems to have devoted anxious and early attention to the encouragement of iron mines and manufactures. In 1734 a patent to 100 acres of State land; at Salisbury, was granted to Philip Livingston, of Albany, N. Y., and others, they having found a bed of iron ore there, and having also set up works to manufacture iron from it. Salisbury iron has a very high reputation at the present day. In 1736, pig iron, potash and common iron kettles were made at Salisbury. In 1775 £1450 were expended by the "Council of Safety," to prepare and work the furnace at Salisbury, for casting cannon and shot; 59 men were employed, and vigorous measures were adopted to furnish iron sinews for the Revolutionary war.

Iron Wire—The supply of iron wire from England, being cut-off by the war, £300 was granted to Nathaniel Niles, of Norwich, by the Assembly, to erect works and make wire for cards and such like articles; he manufactured wire during all the War of Independence.

Steel—In 1728, Samuel Higley, of Simsbury, and Joseph Dewey, of Hebron, made good steel of iron, and prayed for a patent for twenty years to prohibit all others from making steel. This was the first steel said to be manufactured in America, and a patent was granted for ten years.

Self-Winding Clock—On the 6th October, 1783, a patent was granted by the Assembly, for fourteen years, to Benj. Hanks, of Litchfield, for making a clock to wind itself up by the help of the air, and which was to continue to do so, without any assistance, until its parts were destroyed by friction; it was also to keep the most regular time of any machine ever invented. The late perpetual motion exhibited in this city, was far inferior to this old one in point of utility.

Drill Plow—In 1765, the London Society of Arts awarded a gold medal to Benj. Gale, of Killingworth, for a new and improved drill plow. Benoni Hilliard, of Saybrook, petitioned the Assembly at Hartford to make Gale pay him £50. He asserted that he was the inventor of the drill plow, and having entrusted Gale to bring the subject before the London Society of Arts, he, instead of doing so, declared to the Society he was the inventor himself and not Hilliard. How the difficulty was settled, is unknown. It was a mean and contemptible act on the part of Gale.

Glass—A patent was granted for twenty years, in 1747, to Thomas Darling, of Hartford, for the exclusive privilege of making glass. This act appears to have become void, because of the patentee not fulfilling its conditions; and at various times after this, special grants were made to others to introduce the manufacture of glass.

Paper—In 1770, C. Leffingwell, of Norwich, had manufactured 4020 quires of writing paper and 10,600 quires of printing paper, and was paid a State bounty of £81, 16s. 8d.

Torpedo—In 1776, David Bushnell, of Saybrook, invented a torpedo to blow up the ships of the British, and he was granted £60 to perfect his invention, which was said to be very ingenious.

Tide Mills—In 1773 there was a great drought in Connecticut, and the streams for operating the old undershot wheels, for grinding grain, became so low that in four months only twenty bushels were ground at Saybrook, and persons residing there had to carry their grist to the tidal mills of Long Island;

John Shipman, of Saybrook, then petitioned the Legislature for a patent for an improved tidal mill, and it was granted to him for forty years, for the town of Saybrook, and twenty miles west of the Connecticut river. All persons were forbid erecting and improving tide mills within those limits during that period.

Water Perpetual Motion—At this period Harris Ransom, of Colchester—a prisoner in jail, petitioned for a patent of 100 years, for making water rise thirty feet high from any pond, or spring, to convey it to towns or cities. This was no doubt the common syphon which Ransom called "a perpetual water motion." This petition was not acted upon.

Stocking Looms—In 1777, James Wallace, a stocking weaver, from some place abroad, petitioned the Assembly for the loan of £100 to construct stocking looms, and a machine to spin the materials. He declared he was master of his business, and could make silk, cotton, and worsted stockings as cheap as they could be made in the "old country." His petition was rejected. On the succeeding year, Benj. Hanks, of Windham, also petitioned the Assembly for a premium for making stockings on looms. In 1789, Thomas Hubbard and Christian Leffingwell, of Norwich, having erected eight stocking looms, prayed to be relieved of poll taxes—their apprentices being rated for such. This petition passed the Lower House, but was negated in the Upper.

TO CORRESPONDENTS.

J. P., of Va.—We do not know of any concern in the country engaged in the sale of asphalted felt for covering buildings; we understand that it is used in London with excellent success.

A. D., of N. C.—The first patent of Young & Wilson's smut machine was issued in 1839, and therefore expired by limitation in 1853; it was not extended. Their second patent was issued in 1844, and will not expire until 1858. The time for its extension has not arrived, and we presume no action has been taken in regard to it, as such action would be premature.

D. L. I., of Mich.—We should be doing you a great injustice if we did not advise you that your alleged perpetual motion is an absurdity. If constructed after the plan shown in the drawing, it could not make a half revolution without the application of external force. You are pursuing a phantom, and we advise you to abandon the chase. We repeat what we have before said, viz., a perpetual motion is an impossibility.

T. S., of N. Y.—The Miller and Millwright's Assistant is published by H. C. Baird, Philadelphia. The millwrighting information in it is not extensive.

J. B., of N. Y.—Your plan of using the gravity of water in a vertical line, with a tier of buckets on a deep pendulous belt is very old; it involves too much friction, and we would not advise you to build such a machine. We have given the rules for calculating the velocity of water from the standard authorities.

E. J. W., of N. Y.—A ball shot from what is called a smooth-bore rifle (a misnomer,) has not a rolling motion like a ball rolled along a plank. How could it get such a motion? We cannot tell how Sharp's rifle can send a ball to a greater distance than any other breech-loading rifle, nor do we believe it can.

A. F. O., of N. Y.—If you apply by letter to the Sec^y of the Smithsonian Institute, he will send you a pamphlet on the preserving of insects, reptiles, etc.

F. D., of N. Y.—Circular saws made in sections, are no new. Each tooth was secured to a hub. Your method of fastening the teeth is different from any plan known to us and a patent may be obtained.

C. G., of Ohio.—It is not an established fact that cold air injected into steam will cause it to occupy double the space at the same pressure—in other words, double its power. We are in possession of no data, establishing the fact of such expansion.

G. H., of Va.—If you get "Fairbairn on Cast and Wrought Iron," it will give you the information desired on cast-iron girders. It is published by J. Wylie & Co. this city.

J. A. & Sons, of Mass.—The only way to prevent the dry rot in hickory and oak, is to submit it to a current of dry hot air, as soon as it is cut, taking care to commence with a low heat, and increase it gradually up to 212 degrees.

P. B. J., of Texas.—Forty cubic feet of water is required to be evaporated in ten hours in a four horse power boiler. One cubic foot per horse power is the rule.

R. W. H., of Ct.—Mechanical cradles are very plenty in this market; it has been our privilege to use one of Walker's best, and we can speak understandingly of its hush-my-dear properties. You could get no patent for yours.

T. D. I., of Mich.—Double axles for railroad trucks are not new; this would doubtless obviate the wringing and twisting produced in the making of a curve, but as yet we are not aware that they have ever been tried. No chance, however, to procure a patent. We are not aware that any machine has ever been invented for the purpose of holding lath to the wall for nailing.

A. A., of N. Y.—Sir Snow Harris' work on Electricity will give you the desired information; there is an illustrated article in the Encyclopedia of Chemistry on the subject. If you write with lunar caustic solution, then apply the alkaline solution afterwards, you will obtain indelible marks on linen.

W. H. S., of Vt.—Coke is produced by the distillation of bituminous coal, on the same principle that charcoal is produced from wood. In the process of coking nothing is thrown off but carburetted hydrogen gas, which is used for lighting purposes. The coke retains the carbon, which is valued for its heating properties.

A. E. S., of Phil.—Venetian soap is a term used by some persons for soluble glass; which is made of white sand dissolved in a strong caustic alkali.