IMPROVEMENT IN CORNISH ENGINES.

MESSRS. EDITORS:—I have for years, been watching with much interest for some improvement to be made in the efficiency and the more economical working of the so called Cornish and other pumping-engines, made in this country, and I regret to say that I am unable to find much, if any, and that, although in style of workmanship and amount of material they should be first-class engines, yet, it is universally conceded, they are quite inferior, in point of economy, to the English build.

This absence of improvement arises from a want of mechanical skill, as much as from the fact that our mechanics have not the proper inducements held out to them to exercise their ingenuity, and perfect their ideas in this direction. So that whilst the mower and reaper, the sewing machine, and even machines and articles of less importance are continually improved and improving, the great pumping engine almost glories in its stationary inferiority.

Allow me to suggest, for the consideration of water companies, engineers and others interested, a plan by which to bring the best mechanical knowledge, skill, and ingenuity of the country into competition, for the perfection of the pumping-engine. Should you desire an engine to do a certain amount of work, instead of asking for proposals for engine and pumps after a certain design, with certain boilers, &c., request proposals for engine and pumps of sufficient capacity to pump a certain number of cubic feet a required height per minute; the bid to be a certain sum per million pounds lifted one foot by the use of every hundred pounds of coal consumed, the price to be determined by the average working of the engine for say two weeks, of course specifying the style of workmanship, and requiring a strength of material sufficient to warrant the continuous working of the machinery.

For example, suppose the work to be done required an engine capable of performing a duty of 90 millions. A mechanic proposes to build such an one at the rate of $500, per million; if on trial the engine proves itself able to do this duty, the price will be $500 × 90, = $45,000, but if it should only perform 25 millions, then the price would be $500 × 25, = $12,500.

This plan you will see works with justice to all parties; while it guarantees to the parties desiring the work the best machinery the mechanic can build, it secures to the mechanic pay according to the merit of his work, and at the same time it offers to him every inducement to increase the efficiency and economical working of his engine by the addition of such real practical improvement as his ingenuity and the experience of others may have proved to be advantageous.

JOHN WEST.

Morristown, Pa., August 15, 1859.

PUMPING WATER.

MESSRS. EDITORS:—Your Canadian correspondent, on page 85, would find it impossible to irrigate his grounds on the plan proposed by him, and I quite agree with your correspondent, J. B., of Newark, N. J., in his views.

The only real, practical way of drawing water long distances, in large quantities, is to lay a horizontal pipe or one sufficiently inclining, so that the water may freely flow into the pump-well of itself, and then raise it in as short a pipe as possible.

For all hights under 20 feet of suction, a good reciprocating pump will answer a good purpose; but where water is to be raised a greater hight than that, a rotary or continuous pump is preferable. The reasons are obvious; water, in one of its characteristics, being a solid, the sudden stopping and starting of a large column of water will soon destroy the best reciprocating pumps.

The New York Central Railroad shop, at Syracuse, raises water by suction only 24 feet; yet the best constructed reciprocating pumps, of various patterns, which have been tried, were constantly out of order. Two years ago they put in a rotary pump, which has run successfully ever since.

With a rotary or continuous pump, your Canadian correspondent might draw water successfully half a mile, not exceeding 16 feet elevation, provided his suction-pipe was nearly air-tight.

When water is raised by a reciprocating engine to a hight of 20 feet and over, the pumps must be of long stroke, and work very slow; otherwise, the pressure of the atmosphere will not be sufficient to cause the water to follow the plunger, and the vacuum that is created will cause a concussion on the return of the piston that will rapidly destroy the best constructed machinery.

W.

Elmira, N. Y., August 11, 1859.

[Our correspondent is perfectly correct in regard to laying the long suction-pipe in such a manner as to allow the water to flow into its entire length by gravity, and thus the pump will only be required to move the short column in lifting. But, in most situations, this necessitates a deep cutting to lay the pipes, thus involving a great original outlay. What is wanted is to draw water from a considerable distance, and to lift it as high as possible, with the least expenditure of power and money.—EDS.

CANNEL COAL AND ITS OILS

MESSRS. EDITORS:—The manufacture of coal-oils, owing to the brilliancy of its light, its economy and safety, has become a matter of general interest. By geological surveys, the discovery has been made that we have very large deposits of cannel coal. This is very cheering information. The light of oil obtained from pure cannel coal is estimated to be 10 times more brilliant and powerful than that of the best sperm oil, and five times that of the gas of our city. Its cost is in the same proportion, or about one-fifth of that of gas; while, in point of safety, it is perfect. A lighted match dipped in the oil will not cause an explosion or set the oil on fire.

There are are several spurious mixtures thrown into the market, and of a highly dangerous character, which have the external appearance, smell, &c., of pure oil, but are explosive. A small portion (a thimble-full) placed in an open vessel, and a match applied, will at once expose the character of the oil. This spurious article is composed of coal-oil, turpentine and alcohol.

There are at present two mines of the true cannel coal known on this continent. The one is at Prince Edward's Island—the "Prince Albert Mine"—the other is at the "Forest Hill Mine," in Fayette county, Va. The nature and composition of this latter coal is such, that when exposed to the rays of the sun, it becomes soft and "elastic as manufactured india-rubber," and when laid upon a heated surface, the oil is seen to trickle from it as from a lump of fat. It is of a jetty black appearance, with conchoidal fracture, is unctious to the touch, and can be lighted with a common match. It burns with a clear, bright flame, and smokes.

Large quantities of oil are now being thrown into the market, manufactured from bituminous coal. This produces a feeble light, and, in some cases, will not give any.

The coal from "Prince Albert Mines" is mainly consumed at the works on Hunter's Creek, Long Island; that from "Forest Hill Mine" is mainly consumed by the Forest Hill Mining and Manufacturing Company, whose works are situated on the premises, near Cannelton, Kanawha county, Va., and are under the personal charge of Professor H. H. Eames.

L. A. R.

New York City, August 15, 1859.

NEW INVENTIONS.

ARGAND GAS-BURNER.—Hippolyte Monier, of Paris, France, has invented an improvement in these useful illuminators, which consists in combining metal with burnt clay-porcelain, or other incorrodible, refractory, non-conductor, whereby these incorrodible substances can be used for those parts where it is desirable, and metal can be used for the portions where it is most needed.

SHAPING AND PRESSING BONNETS.—C. W. Russell, Philadelphia, Pa., has invented improvements in both these processes. The usual method of forming bonnets, hats, &c., of an old pattern according to the fashion, is to wet them and force them over the new block, by the aids of pins or needles, commencing at the crown of the bonnet or hat, and working it up to the block with the fingers, and fastening the several parts to the block by means of pins until the whole bonnet has assumed the shape of the block. This method is not only very tedious, but it is also insufficient, in such cases where the shape of the hat differs considerably from that of the block. The object of the first invention is to do this work not only quickly, but also very perfectly in all cases and it consists in pressing and retaining the bonnet to the block by means of a cord which is wound several times and in different directions over the crown and body of the bonnet and which is retained in its position by a hook on the back part of the block and by a series of hooks attached to a strip of cloth which is drawn over the front part of the bonnet, so that each part of the latter is forced up tightly to, and retained on the block, where it is left to dry until it assumes the desired shape. The principle object of the second invention is to connect the lever which carries the pressing iron with the treadle in such a manner that the pressing surface of the iron may be brought to act upon the bonnet in any desired direction by merely depressing the treadle and without the aid of the hands.

TAPPING WATER MAINS.—J. B. Quigley, of Trenton, N.J., has made an invention that relates to an improved mode of attaching the branch or service pipes to the street main. The method of accomplishing this at present is attended with much inconvenience, and in many instances a great loss of water, the usual practice being to shut of the water, sometimes for whole blocks, until a hole is drilled through the main pipe, and the branch pipe properly fixed thereto. This invention obviates these objections, and the pipe is introduced into the main without stopping the flow of water, and it consists in a peculiar device which is attached to the main for the purpose of holding the drills, so that a hole can be bored nearly through the pipe, leaving a thin scale of metal. A ferule is then introduced in the hole, which is attached to the service pipe, a few blows then break the scale of metal and the atttachment is complete.

SHOE-PEGGING MACHINE.—The object of this invention is to obtain a simple, economical and efficient device for pegging boots and shoes by manual operation—a device by which the work may be done with all the perfections accomplished by the complicated automatic machines invented for the purpose. It consists in having an awl and punch attached to a sliding plate which is fitted within a box having a lateral movement, the box being fitted on guide rods in a stock and before a peg trough filled with pegs, the whole being arranged in such a way that by striking the plate having the awl and punch secured to it, the peg-holes will be made in the sole, and the pegs driven therein, the device being fed along around the sole by the downward movement of the of the awl and peg-plate. The inventor is W. R. Landfear, of Hartford, Conn. An engraving of this invention will shortly appear in our columns.

MACHINE FOR MAKING PAPER BAGS.—William Goodale, of Clinton, Mass., has invented a new machine for manufacturing these useful articles, and the invention relates, firstly, to an improved pasting apparatus for applying the paste to the edge of the paper for the purpose of forming seems in the bags; it also relates so an improved system of feed and measuring rollers, for supplying the paper from a roll or continuous piece to the cutting and folding machinery; and it also relates to a drop applied in combination with the cutter, which cuts the paper from the roll or sheet to the proper shape to form the bag for the purpose of holding the paper close to the knife during the cutting operation. There is also a plate employed to fold the bag upon, which is either narrower than the bag, or the same width, but stouter, and there are improvements in the creasing and folding apparatus for the sides and bottom of the bag.

NAIL FEEDER.—A griper having a peculiar operation for the purpose of conveying the rod to the forging or pointing apparatus of a wrought nail machine, and of holding it during the forging or pointing operation, is employed in this invention; the griper also conveys the nail after it has been forged or pointed to the cutter to separate it from the bar. A gage is combined with the cutters to ensure the nail being a proper size. The inventor is Daniel Dodge, of Keeseville, N. Y.

IMPROVED GRINDING-MILL.—The object of this invention is to regulate the runner stone of a grinding-mill by a compensating device which will allow the stone to raise and free itself of any hard substance getting between the faces of the stones, and which would injure the face and derange the mill; and also to form a passage in the eye of the upper stone which will allow the grain to have a constant and free flow from the hopper and not be affected by the centrifugal action of the runners in its passage from the center of it to be ground. The invention fulfils these objects, and the inventor is, Charles W. Brown of Boston, Mass.