

New Inventions.

Improvements on Fire Engines.

Messrs. Peake & Kells, of the city of Hudson, in the county of Columbia, N. Y. have constructed a new Fire Engine, the parts of which are combined and arranged in a different manner from any now in use, or that have come under our observation. The bed plate is cast to receive the cylinders of the pumps placed lengthwise across the box, opposite one another. The two pistons of the pumps are connected by one stem or spindle which is traversed or moved by a small arm connected to and projecting below the main longitudinal shaft. When the arms of the engine are operated, the arm that projects below and which works the pistons of the pumps has an oscillating motion. The valves are placed in the inner ends of the cylinders, where the stem of the pistons extend out, and may be said to be placed in the reverse position from those engines with the upright cylinders.

A trial of this engine has given both the makers, those who worked it, and those who saw it operate, a very favorable opinion of its qualities. Its compactness is self-evident, and one good thing about it is this, that the truck can be built to use without any inconvenience, much larger wheels than any of what are called "the piano engines," now in use.

Printing Improvement.

The Ohio State Journal says: "Mr. James Armstrong, the foreman of our job office, has brought out an invention which promises great utility to the craft. It is an improvement in the mode of locking up forms, by which the bevil side and footstick, as well as shooting stick, quoins and mallet are all dispensed with. In lieu of those, he supplies two parallel metallic bars at the side and foot of the form, furnished at suitable distances with right and left screws, operated by a small hand wrench. The affair is a very simple one, when once seen in operation. Its advantages are economy in time, as well as in expense of furniture and quoins, greater facility in registering, economy of space between the chase and the matter, and general convenience. It is equally well adapted to the smallest card and heaviest broadside. Mr. A. has taken measures to secure a patent."

It may save Mr. Armstrong some expense to know that the locking up of forms by nuts and screws is not novel. The forms of the New York Sun are all locked up by screw and wrench.

Improvement in Steam Engines.

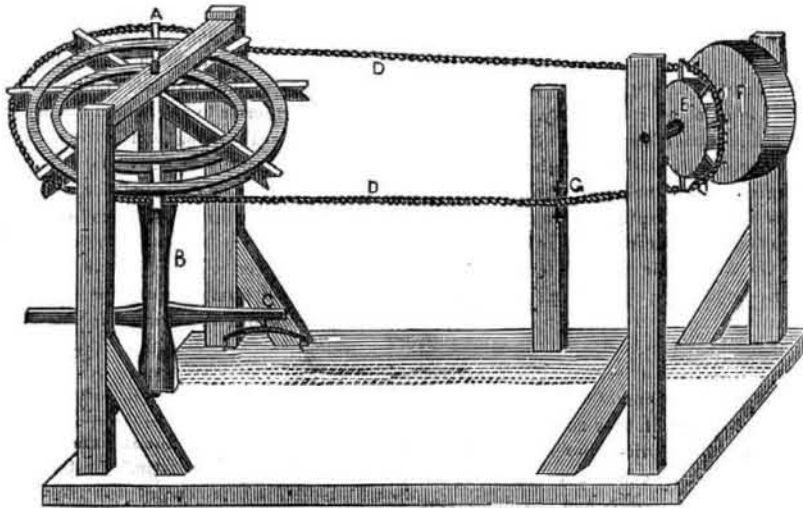
Mr. John Varley, Engineer, residing in Bury, County of Lancaster, England, has made the following improvements, as we learn by the London Patent Journal. The improvements consist in having the steam and exhaust valves in the bottom and cover of the cylinder, so as to open directly into the cylinder. Cavities are formed in the cover and bottom of the cylinder or in raised boxes cast thereon in which the valves are placed, two being fitted to either end, one for the entrance and the other for the exit of the steam. The valves which the inventor uses are the double conical kind, the stem of which passes through the stuffing box in the cover for the purpose of actuating it. In the cover of the cylinder, the lower seating is fitted into the thickness of the metal next the interior, so that the lower valve when down, forms part of the under surface of the cover; the other part of the valve on the same spindle is higher up by the depth of the steam passage which enters between them. The exit valves are similarly constructed, each being respectively connected with the steam pipe and passage to the atmosphere, or to the condenser. These passages are cast in opposite sides of the cylinder, running from end to end, and communicating with the steam and eduction valves, at either end of the cylinder—both ends being similarly furnished—one passage connected

with the boiler, the other with the condenser. Small passages lead from the cylinder above and under surfaces in equilibrium, while the space between the two discs on the same spindle or stalk being either in connection with the steam or the condenser, they are easily moved for the admission and release of the steam. The valves are actuated by means of a rotating horizontal disc placed below the cylinder, having a cam on its surface, at the circumference, on which a roller runs supported from one end of a lever, the other end being connected to the spindle of the induction valve. A similar roller is in connection with a rod passing up the side of the cylinder, from which an arm is connected to the stem of the upper induction valve. The eduction or exhaust valves are similarly actuated by a cam on the other shaft, the whole of course being arranged to open and close their respective valves at the proper time, whether for work-

ing the steam expansively, or without the cut off. The different cams are worked by suitable gearing with the main shaft.

The equilibrium valves are not new, and the manner herein described for working the valves, is equivalent to other plans for a like purpose, and the inventor does not claim those things as new, but confines himself to the peculiar manner of placing the valves in the cover and bottom of the cylinders. We know not whether this plan will be better than the old steam chest and side passages or not, it will take a fair trial to test its merits, but novelty it has undoubtedly, although Mr. Wilder of this city recommended last year the placing of the valves in the bottom and cover of cylinders, as a great means of preventing breakage. Mr. Varley has not viewed his invention in that light, but to avoid the common passages between the valves and cylinder—it may accomplish more than that if Mr. Wilder is correct.

BERTHOLF'S HORSE POWER.



This is a horse power of H. W. Bertholf of Sugar Loaf, Orange Co., N. Y. for which he has taken measures to secure a patent. It is very simple—any person can construct one for himself after seeing this. It is a simple contrivance to get out of order and it will not cost much to construct it. Four strong posts like those represented above, are set up permanently in a shed next to the barn, exactly between two of the posts, is erected a strong upright shaft B. This shaft has an iron centre below and one above in a cross beam to allow it to revolve in its bearings which may be boxes with antifriction balls, especially the lower one. A is a radial arm wheel secured to the shaft B above, and the arms are notched at the extremities

to hold the chain D D, and prevent it from slipping. This chain communicates the power from the main shaft to a horizontal notched wheel E, which can drive a thresher, or grain mill. G is a post with an anti-friction pulley on it, to guide the chain on the wheels. The power is applied by harnessing the horse or horses to the lever G of the main upright shaft. They walk round between the two posts, thus giving motion to the whole machinery. All the parts may be made of wood except the axis of the shafts and the chain for a stationary horse power. Grooved sheaves and a round band may answer as substitutes for the chain and the notched pulleys.

New Invention for Sewerage.

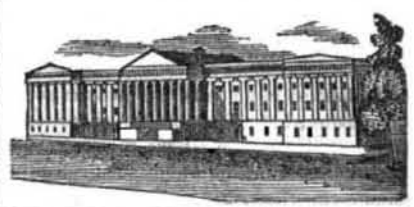
Daniel Richards, Esq. one of the present members of the Board of Aldermen of this city, has invented a new kind of Sewer, a description of which is to be seen in Dr. Goodrich's office in the City Hall. The principal advantage of this sewer seems to be that the gas and water pipes can be placed in them, and thus save the city much expense and labor.

It is singular that some inventors direct the energy of their minds to the very antipodes of that which appears to us as the most important to themselves and others. Now had a member of our City Council invented an apparatus that would keep our streets clean and fordable in wet weather, he would be entitled to the fame and the name of philanthropist. Such an apparatus would save to the city in direct outlay, perhaps not less than \$200,000 per annum, and add 5 years to the average duration of the city life. And as a general saving it would perhaps be worth to our whole city about \$2,000,000 per annum. Some people may think this an extravagant calculation, but when we consider how many doctors' bills would be saved, how much clothes saved from the brush, and the time spent in brushing them, besides the blacking and brushes and all that, it will be found below the mark. Good sewers are good things—no person will doubt that, but the other is more necessary at present, and it is to be hoped that Mr. Richards will direct his inventive faculties, which are not small, to this subject.

Percussion Caps.

The detonating lock for guns, as a substitute for the flint one, is the invention of a Scottish clergyman named Forsyth. His plan was to prime with percussion powder and explode it by the hammer, in the same way that some gun employ it yet. The percussion cap was an improvement upon the original invention and for general use has superseded it.—The percussion cap we believe is a French invention, but a machine for making caps, invented by a Mr. Wright, a private in the American army, is allowed to be the best ever invented for that purpose. It is used in the United States Arsenal at Washington and manufactures them at the rate of about 2000 per minute, attended by one person. The machine occupies a space about 3 feet by 4. A sheet of copper is placed on a table and carried below the dies, which form the caps and places them around the edge of a charging disc, into holes. This disc has a rotary motion and carries the caps under a cup containing the percussion powder, from which drops, with singular regularity, a quantity for a charge, into each cap. Progressing round at another point, is a very fine punch, which completes the job of charging by pressing home the powder—and at a third point a small instrument throws the caps from their lodgement, tosses them into a funnel, and through which they fall into a drawer beneath.

The St. Louis Republican notices a Steam Gauge invented by Mr. A. S. Lyman, of that city, which tells the pressure of the steam and the state of the water in the boiler.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE.

To Francis C. Goffin, of Philadelphia, Pa. for improved Door Lock by a combined Key and Guage—also a Thief Detector. Patented March 6, 1849.

RE-ISSUES.

To John Ericsson, of New York City, for improvement in Propelling Ships. Patented Dec. 31, 1841. Re-issued March 6, 1849.

To Pearson Crosby, for improvement in Saw Mill. Patented Nov. 3, 1841. Re-issued March 6, 1849.

To Benjamin W. Bean, of New York City, for Machine for Sewing Cloth. Patented Mar. 4, 1843. Re-issued March 6, 1849.

To William Trapp, Jr. of Dryden, N. Y. for improvement in Barrel Machinery. Patented Oct. 1, 1845. Re-issued March 6, 1849.

DESIGN.

To Henry Fay, of Troy, N. Y. for Design for Stoves. Patented March 6, 1849.

[The above is part of last week's list of Patents, omitted for want of room. The list for this week had not arrived from the Patent Office, when we went to Press.]

To Remove Stumps.

Procure a dry red-elm lever, about twenty feet long, and about six to eight inches in diameter,—also, a good stout log-chain, with two yokes of oxen; this is all the machinery necessary, except a good ox-driver. The mode of operation in thus; wrap the chain around the stump a little above the ground, and make what is called a log-hitch; lay the lever horizontally on the ground, the large end next to the chain and against the stump make the loose end of the chain fast to this end of the lever, drawing it tight against the stump; the cattle are hitched to the small end of the lever and driven around the stump in a circle, of which the lever is the radius. One revolution of the oxen around the stump will generally twist it out of the ground, or loosen it so that it may be hauled out by the oxen when hitched to the log-chain around the stump.—But should not the power of this machine be sufficient to move the stump, the side roots may be uncovered and cut partly off, and the stump will then be more easily removed.

By pursuing this plan in the spring of the year, when the ground is loose and mellow, the stumps are more easily removed; and by persevering in this method two or three years your fields will be cleared of these obstructions to neat and economical farming.

This extract is taken from the Ohio Cultivator, and is a very simple stump machine.—The ingenuity of our farmers in different places lead them to adopt various plans for the easy removal of stumps, and there are some excellent stump machines in the Northern parts of this State. The above however is both a good plan and an excellent hint to our farmers at this season of the year.

To Prevent Accidents by the Breaking of Axles.

Mr. Lyman Gouch, of Springfield, Mass., has invented a plan to prevent accidents from the breaking of railway carriage axles. The invention consists in confining the axle in a long light cylinder, strapped around the axle and revolving with it.

Electro-Magnetism.

Professor Page, who recently obtained from Congress an appropriation of \$20,000, to enable him to continue his experiments in testing, in Washington city, the applicability of the electro-magnetic power to machinery, has constructed an engine, by which a cylinder printing press is driven as well as if steam was the moving power.

A paper however was printed by such an engine 8 years ago.

Anti-friction roller boxes are now being introduced on the English locomotives.