

New Inventions.

Reports of Railroads.

OIL.—The custom adopted by the New York and Erie, and the Great Central New York Railroad, of keeping a correct record of the work done by each locomotive, and the different items of expense, and publishing monthly reports, must do good, by showing the directors, superintendants, engineers, and all concerned in such accounts, where the greatest loss is caused, and where the greatest gain is obtained. The Report of the General Superintendent, C. Vibbard, Esq., of the New York Central Railroad, for September, shows the number of miles run by each engine, and the quantity of oil used. The average number of miles run to one pint of oil was 16 69-100—two miles more to the pint than in the previous month. The engine *W. W. Corcoran*, ran 50 65-100 miles to one pint of oil. This was the highest rate; the lowest only 6 13-100 miles, was by the locomotive *Syracuse*. It must have been sadly out of repair. What is the cause of the *W. W. Corcoran* performing so well? In the report for last month of Edward H. Jones, Master Mechanic of Albany & Utica division of the above railroad, we find that there was nearly two miles less run to the pint of oil than during the previous month. Has the maximum economy of oil been obtained on this railroad? We think not. We have no doubt but the engineers on this railroad will yet show a higher rate of duty done by the engines to one pint of oil than they yet have shown.

FUEL.—The monthly reports of General Superintendent D. C. McCallum, Esq., of the New York and Erie Railroad are more elaborate than those of the Central Railroad. They embrace the work done by each engine, and give all the expenses separately. In his report for the last month (October,) we find that the average number of miles run to one pint of oil was 16 4-100—nearly two miles more than the previous month.

The general average of miles run to one cord of wood was 27 29-100—about two miles more than the previous month—while the average cost was four cents more, thus showing a decrease in the expense, no doubt; but the increasing cost of this kind of fuel is a serious question. On the eastern branch of this railroad the wood costs \$5 71 cts. per cord—a very high price—while on the Buffalo division it costs only \$2 94 per cord, and yet the expense of fuel per mile for drawing a tun load on this branch is about as much as on the Eastern branch. The engines on it seem to have been but half as economical of fuel. There is room for improvement here, and the energetic Superintendent will soon stick a pin in that spot. Fuel is the largest single expense, the average being 13 22-100 cts. per mile run; the repairs of engines amounts to 6 5-100 cts. per mile; oil and tallow, 1 23-100 per mile. Every effort must be directed to economize the fuel. No less than 12,516 cords were consumed on this road during the month of October; this amounts to (12,516 × 8 + 5,280) 18 93-100 miles of cord wood, 4 feet high and four feet wide, and cost \$45,016 68. Such a destruction of forest, amounting to 236 miles of cord wood per annum on this single road, must soon render such fuel scarce, and consequently dear. Coal-burning engines or cheap coke are the remedies to which all our railroad managers and engineers should be directing intense attention.

Spontaneous Combustion.

A correspondent, speaking of the fire at the coal mine at Beaver Meadow, Pa., which, it had been supposed, originated from spontaneous combustion, states that such is not the fact; that the fire in the dirt heap or coal dust at that place was the result of carelessness on the part of the managers of the mine, who allow their firemen to wheel or cart the hot ashes from the engine furnace on to the "dirt heaps." There are now, says our correspondent, three veins of coal on fire, or perhaps the same vein in three different localities, in the anthracite coal fields of Pennsylvania, but they have all been ignited by the carelessness of the miners.

The first was set on fire at Coal Castle many years ago, and is still burning, like a slumbering volcano, having destroyed, probably, millions of tons of coal, as the vein is the celebrated "Jugular," which varies from 60 to 120 feet in thickness. The second was recently set on fire at Tamaqua by some miners who were digging their winter's coal at the outcropping of the vein; and the third is the sub-

ject of remark at Beaver Meadow.—[Philadelphia Ledger.

[Would it not pay to extinguish this fire by forcing steam and carbonic acid gas into the mines, as was accomplished a few years since by Goldsworthy Gurney, in England. The burning coal mine which he extinguished had been burning for a longer period than those in Pennsylvania.

WEBER'S PATENT FARM GATES.

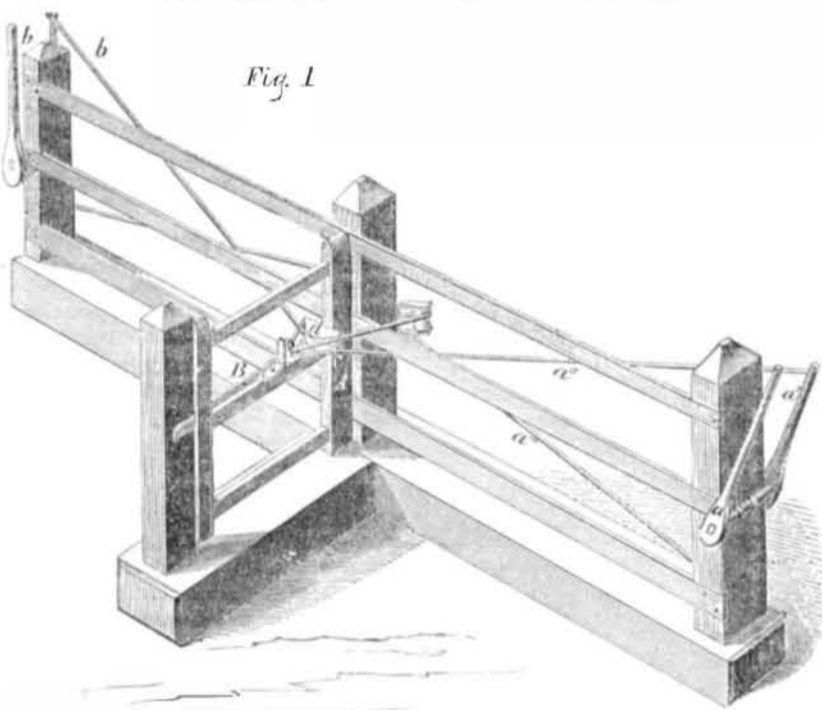
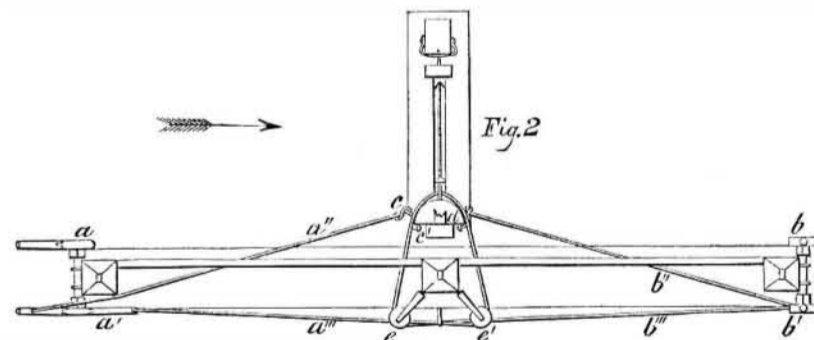


Fig. 1 of the accompanying engraving is a perspective view, and fig. 2 is a plan view of a method of operating gates for farms, for which a patent was granted to John K. Weber, of Seneca Falls, N. Y., on the 9th of October last. The nature of the invention consists in the peculiar mode of opening and closing gates, which are so hung as to be opened and shut both ways, and a person riding in a vehicle or on horseback can, without dismounting, open the gate, and close it after he has passed through. The gate A, is hung upon pivot or swivel hinges, so as to swing freely both ways, and is fastened by the spring bolt B. On either side of the gate there is a set of levers and cords so arranged and connected with the gate and spring bolt as to open the gate in a direction from and in front of the person passing through. The two sets are alike in arrangement and operation, and a description of one will answer for both. The lever, *a*, is worked by the hand



lever, *a*, as shown in fig. 1. The cord, *a2*, is attached by one end to the top of lever *a*, and by the other end at *c*, fig. 2, to the semi-cylindrical segment, *d*, which is firmly fixed to the gate. The cord, *a3*, is attached by one end to the lower part of lever *a*, and after passing over guide pulley *e*, fig. 2, and around the periphery of the segment, is attached by its other end to the segment at *c*, fig. 2. It will now be seen that if the lever *a* is pushed forward by a person riding in the direction of the arrow, the upper end of *a* is carried forward, and its lower end backward, and that the action of the cord, *a3*, will be to open the gate in the direction of the arrow, and that the reverse motion of the lever, *a*, would shut the gate by means of the cord, *a2*. The cords, *b2 b3*, from the upper and lower ends of lever *b*, are arranged and operate similarly to cords *a2 a3*, except that they operate to open and shut the gate in a different direction. The cords, *a3 b3*, pass through a loop to keep them in place on the

pulleys, *e e'*. It will be readily seen that a gate of this description must be fastened when closed, or it could be opened by the wind or by cattle in either direction, and in order to fasten the gate and control the fastening by means of the levers, *a* and *b*, the cords, *a3* and *b3*, pass through a loop on one end of the spring bolt, B, and as these cords alternately slacken and are drawn tight by the alternating motions of the levers, the spring bolt will be withdrawn and allowed to return to its place.

The gate is shown with a fence on one side; and it will be understood that when it is opened as described, by a person advancing in the direction of the arrow and putting up the lever, that it remains open until he passes through and closes it in the same way on the other side. The claim is for the arrangement of the levers, *a a'*, *b b'*, cords *a2 a3*, *b2 b3*, in combination with the spring bolt, B, for opening and closing the gates both ways, in the manner set forth.

By addressing communications to Mr. Weber, at Seneca Falls, more information respecting rights, &c., may be obtained.

Who'll take the Prizes?

Competitors for the large prizes to be distributed by us on the first of January, are reminded that the time for them to act is short. Fifteen will win, while others must suffer disappointment. The question is, who will be the fortunate ones? The answer is, those who have exerted themselves the most, and obtained the largest number of subscribers. To some who have entered the arena of competition, the addition of a few more names to their lists, perhaps a single one, will save them the mortification of defeat. Think of that fact, and act accordingly.

The Hillotype Again.

The Rondout (N. Y.) *Courier* announces that the Rev. L. L. Hill has at last completed his invention of the Hillotype, and "has received

an offer of \$30,000 provided he will go to Europe and obtain patents. This he does not deem a sufficient consideration for so brilliant a discovery." What a conscience. It is also stated that "he has recently made a great addition to his invention by reproducing the colors of nature on collodionized glass, and has relieved himself of the difficulty of using silverized plates."

Awards to American Exhibitors at the French Exhibition.

We publish herewith a list of the principal awards made to American Exhibitors at the French Exhibition,—nearly every article sent from the United States either received a medal or was honorably mentioned by the International Jury. We have not room for the whole list.

GRAND MEDALS OF HONOR.

C. H. McCormick, Chicago, Reaping Machine
Chas. Goodyear, New York, India Rubber Goods.

MEDALS OF HONOR.

J. A. Pitts, Buffalo, Grain Separating Machine.
Bache & Saxton, Washington, Weights and Measures.
Lieut. Maury, Wind and Current Charts

MEDALS OF THE FIRST CLASS.

Tousley & Reed, New York, Steam Engine.
J. H. Manny, Rockford, Reaping Machine.
M. Allston, South Carolina, Rice Samples.
Thos. Blanchard, Boston, Wood Bending Machine.
E. Richmond, Boston, Metal Cutting Machine.
I. M. Singer & Co., New York, Sewing Machine.
David King, Albany, N. Y., Model of Steamboat.
Secretary of the Navy, Model of a Vessel
S. Colt, Hartford, Ct., Revolvers.
Merriam, Brewer & Co., Boston, Cotton Goods.
W. S. Seabrook, South Carolina, Cotton Samples.
A. W. Ladd, Boston, Pianoforte.
A. Mirmont, New York, Violins.
C. B. Stuart, New York, Dock and Steam boat Model.

MEDALS OF THE SECOND CLASS.

Z. Thompson, Vermont, Specimens of Forest Wood.
John S. Wright, Chicago, Harvesting Machine.
Wethered Brothers, Baltimore, Steam Engine (super-heating).
John Harraday, New York, Machine for Cutting Clothes.
Sanborn & Carter, Portland, Me., Book Backing Machine.
F. & A. Wolle, Bethlehem, Pa., Paper Bag Machine.
Grover & Baker, New York, Sewing Machine.
Wheeler, Wilson & Co., New York, Sewing Machine.
J. Seymour, Newark, N. J., Sewing Machine.
Fowler & Preterre, New York, Dentistry.
J. Gurney, New York, Daguerreotypes.
G. Gemunder, New York, Violins.

HONORABLE MENTIONS.

Vergennes Scale Co., Vermont, Platform Scale.
Backus & Peaslee, New York, Machine for Washing Rags.
Nelson Barlow, New York, Planing Machine.
C. Kline, New York, Chronometers.
Storms Brothers, Nyack, N. Y., Wooden Ware.
N. W. Kingsley, New York, Dentistry.
Benj. Moore, New York, Sawing Machine.
J. T. King, New York, Steam Washing Machine.
Meade Brothers, New York, Daguerreotypes.
Thos. Maskell, Franklin, La., Sliding Keel.
N. Thompson, Jr., New York, Life Preserving Seat.
Madame Delpit, New Orleans, Snuff.—besides many others.
W. J. Valentine, President of the American Commission, residing in Paris; Marshall Woods, of Providence, R. I., Member of the Jury, and Alexander Vattemare, for services rendered in the American Department, were created by the Emperor, Chevaliers of the Legion of Honor.