Editorial Correspondence.—No. 10.

The Great French Exhibition.—The American Department.

PARIS, July 12, 1855.

It is estimated that there are now invested in manufacturing, in the United States, about six hundred millions of dollars, and that the annual value of the products reaches the enormous sum of one billion of dollars. We have large workshops and foundries scattered over the country,—cotton, woolen, paper, oil, leather, and silk manufactories, besides forty thousand mills employed in the lumber trade. The combined results of these immense interests throw into the shade the industrial exploits of any other nation within the same period. Yet it is not easy to convince a foreigner of this truth from the meager display that is made of our skill and ingenuity in this wonderful Paris Exhibition—and it now begins to appear that the manufacturers of the United States have committed a great blunder in not availing themselves of this open competition for the display of their products. I stated in one of my previous letters that they had no encouragement to come here, owing to the contiguous position of England, and of the advantages possessed by English manufacturers. I have thought very strange that the Canadas should have made an appropriation of $50.000 for the purpose of Exhibiting their products in France.

I now understand that the good results of this enterprise are beginning to be realized, and that orders for lumber, edged-tools, etc., are already on their way to Canada. France needs many things that can be imported from other countries having them in abundance, cheaper than they can be produced at home. In the article of building lumber, France is almost as poor as horses employed in the fish trade of New York. This remark is also true in regard to most of the more valuable minerals, and if the cotton and woolen manufacturers of France would consult their own interests, they would set aside some of their old machinery and adopt such as is displayed from the English workshops of John Platt & Son of Oldham, and I. Elce & Co., of Manchester. Their spinning and carding machinery cannot be excelled —but in regard to looms, I think those made in the United States are the best. I am sorry that we have not one of Reynold's or Scott's Looms to show in our department. With all that has been said of the figure we cut in this Congress of Ingenuity, we have really several contributions that do much credit to our country—as will be seen from the subjoined list of machines that have been illustrated in the SCIENTIFIC AMERICAN. In fact they comprise almost our entire show of machines.

We have Harraday's ingenious machine for cutting garments, furniture coverings, etc., etc.; H. W. Peaslee's excellent machine for washing and handling paper stock; Charles Starr's book-backing machine, improved and exhibited by Sanborn & Carter, of Portland, Maine; Halliday's wind-mill; Willard Day's submarine lamp; Wilson's, and Singer's sewing machines, actively in operation, to a staring multitude; Aatkin's curious raking machine, attached to reaper, by J. S. Wright, of Chicago; also, McCormick's and Manny's reapers, each of which have appeared in the "History of the Reaper." A machine for cutting metals, invented by S. P. Ruggles of Boston, Mass., is a very fine invention, and does our country much honor. It is faithfully attended by E. Richmond, who is the European proprietor, and with the true spirit of an enterprising Yankee, he shows his visitors how easy it is for such a machine to bite off the thickest plates of iron. It effects in an easy manner the rude operation of the blacksmith, who first cuts the enamel of the iron on each side, with his cold chisel, and then breaks the internal substance by a blow, over his anvil. The machine has a wheel that revolves with mathematical exactness, cutting the upper enamel of the plate by a rotatory drawing stroke. It is put in motion by a toothed rack, which causes it to traverse across the upper surface of the plate, whilst the pressure of this wheel upon the plate against the edge of a horrizontal fixed blade causes it to cut the lower enamel, and at the same instant produces a separation of the internal fibers of the iron, so that the plate is divided without the blades coming in contact with each other, nearer than half or two-thirds of an inch. The cutters can be elevated and depressed to suit any desired thickness of iron, by means of eccentric bolts. The cutting blades are nearly straight on their edges, and therefore if properly chilled they will not require sharpening. It requires very little power to operate the machine, and it cuts the heaviest boiler plate at the rate of 10 ft. per minute. It possesses another important advantage, viz: by the use of an adjustable plate holder it is capable of cutting circular lines, thus adapting it to the use of tin, copper and zinc workers. A small machine for this purpose is on exhibition, and I am pleased to learn that the business prospects of its exhibition are very encouraging. I consider it the best iron cutting machine in use.

F. & A. Walle, of Bethlehem, exhibit their ingenious machinery for making paper bags. The importance of such machines will be understood when the fact is known that about nine hundred millions of paper bags are annually consumed in the United States, for packing garden seeds, groceries, etc. Until the introduction of this machinery these bags were made by hand, at the rate of about 1000 per day; the machine is capable of supplying 15,000 per day. It performs the several operations of cutting, folding, pasting, and printing the bag, and by means of a chamber at one end, into which the bags are carried by a series of belts, they are brought into contact with a current of air, and rapidly dried, and are thus delivered for use. The printing is done by the aid of a type cylinder, revolving suitably with the velocity of the bag to be operated upon, and inked by rollers. A machine to do all this is necessarily made up of many parts, requiring several changes of motion, and without illustrations it is difficult to present a clear idea of its operation. The machinery in operation attracts a good deal of attention.

J. A. Reed, of New York, exhibits a very beautiful improvement in oscillating steam engines. For simplicity and effectiveness, I think it is the best engine in the building. This is saying a good deal, considering that there are about 100 steam engines on exhibition. The exhibitor is, I believe, finding a great demand for his engines, and has already sold his stock on exhibition, consisting of three engines of 1, 3, and 15 horse. The peculiar features of this engine consist in admitting the steam into both sides of the cylinder at the same time, by its oscillating movement. By this means the steam pressure upon the cylinder is equalized or balanced. The advantages of the improvement are, that it enables the steam ports to be constructed much larger than the ordinary size, and allow a larger area for the steam to pass freely, and to exert its full power at once. The steam is admitted at the end of the cylinder, and acts at once upon the piston head. Mr. Reed also exhibits an improvement in steam pumping engines, which consists in arranging the valves upon a rod in such a manner as to balance the steam pressure, which enables the engine to be worked as in the case of a steam pump or saw, without the necessity of a balance wheel. If we are ever to have steam fire engines, and steam plows for our western prairies, I think we must depend upon these simple engines of Mr. Reed, as they are the very essence of simplicity.

Thomas Blanchard of Boston, has on exhibition two of his wonderful machines for carving —a small machine is now at work carving medallions upon ivory. It finishes them at the rate of one every twenty minutes, with hand power.

In dentistry we have seen some very superior specimens exhibited by Dr. N. W. Kingsley, of New York. The *mounting* is especially good. The artificial teeth of J. A. Ross of New York, now residing in Paris, are not excelled by any.

Wetherels, of Baltimore, exhibit a large sized machine of their system of surcharging steam —which has also been illustrated in the SCIENTIFIC AMERICAN.

A large machine, intended for carving busts of the size of life, is now waiting for the pattern of a bust of the Empress. The exhibitor intends to show the French people that he can produce a perfect bust, without the aid of the artist's chisel. It is certainly a very curious and ingenious invention, worthy of the inventor's fame. Among the other contributions which do credit to our country are, the series of Wind and Current Charts of Lieut. Maury. Specimens of bank note engraving by Rawdon, Wright & Co., of New York; a pair of weighing balances presented to France by the United States, through Alexander Vattemare, which are pronounced by Mr. Silbemann, Director of the Conservatoire of Arts, as the most perfect in the world; also very beautiful specimens of daguerreotypes by Gurney and Meade of New York. There are other articles of merit from our country, which I have not space to enumerate. I will however mention the grain separator and horse power of J. A. Pitts, of Buffalo —undoubtedly the finest machines for the purpose in the exhibition. We are creditably represented by a small but decidedly useful group of articles, and if the American exhibitors do not receive medals and honorable mention, it will be because they do not attend to representing their articles—a defect that sadly exists, I am sorry to say. It is impossible for the Commissioners to answer such inquiries as the juries are instituting. S. H. W.

P. S. Owing to the difficulty in getting the steam through the long series of copper pipes that have been used for that purpose, the Imperial Commission has ordered iron pipes to be substituted, as iron does not condense steam as rapidly as copper. This delays the machinery exhibition, and I shall be obliged to leave Paris without much time to see it all in operation.

Recent Foreign Inventions.

IRON MANUFACTURE.—Mr. J. Boydell, of Anchor Iron-works, Smethwick, England, has patented an improvement in the beds of reverberatory furnaces used for puddling iron. This invention relates to the employment of the refuse product of pyrites, principally composed of iron, in making the beds of reverberatory furnaces used for puddling iron. In the burning of iron pyrites, when manufacturing sulphuric acid or sulphur therefrom, the residual matters resulting (consisting of oxydes of iron, combined with more or less impurities) have heretofore been thrown away as refuse, and it is the application of this refuse matter in the puddling of iron which constitutes the present invention; and the process of puddling will, by such application, be rendered less expensive, by reason of the low cost of such refuse matters. The oxydes of iron obtained from pyrites in the manufactures above mentioned differ in quality, some being mixed with considerable quantities of quartz or silex, whilst others retain quantities of sulphur; those possessed of either of these matters to any very great extent, should be rejected. Those lumps which present to the touch a soft and smooth surface, and are of a reddish purple in color, are the lumps which should be sorted out of the heaps for use in the puddling furnace; and those which present a hard, sharp, gritty, and cinder-like surface to the touch, in consequence of the silex present, should be rejected, as well as those which present white crystalline or quartz-like fracture, and those indicating the presence of sulphur. The lumps of the refuse matter having been sorted, those which have been selected for use are to be employed in the making of the beds of puddling furnaces, in like manner to that ordinarily practiced when using oxyd ores of iron; the refuse oxydes from pyrites being used either alone or in combination with the oxydes of iron heretofore employed. The patentee claims the application of the refuse products of iron contained in burning pyrites (for the manufacture of sulphuric acid and sulphur) in the making of the beds of reverberatory furnaces used for puddling iron.

IMPROVEMENTS IN FURNACES.—Mr. J. Biden of Gosport, England, has secured a patent for so constructing furnaces as to admit a supply of air to the sides and bottom of the ash-pit, in addition to the ordinary current. The furnace is made sufficiently long from front to back to admit of the incandescent fuel occupying the back half of the fire-bars, and the fresh or unburnt coal the front of the bars. The ash-pit is supplied with a sufficient quantity for complete combustion, by free admission in front. In addition to this, a supply is derived from outside the furnace, and conveyed by a tube under the ash-pit, in such manner as to impinge directly beneath the hinder part of the fuel, which is in a state of incandescence, pass by an opening between the fire-bars and the bridge, and then mix with any unconsumed products of combustion in the flues, and cause them to be completely consumed. In Cornish boilers, these air pipes are carried through the water space into the furnace, at the proper angle to deflect the air towards the back of the furnace. In marine engine furnaces, the air passes in front of a deflecting plate, which, while it causes the air to impinge directly under the hinder half of the fire-bars, keeps the air passages free from ashes.

More About Etherizing Congress.

On page 357 we presented a brief account of the efforts that had been made by Dr. Morton, to obtain a grant of $100,000 from Congress, for the discovery of etherization; and we also stated that the funds for operating on Congress had been provided by the late Treasurer of the Eastern Rail Road, Boston, whose defalcations are now well known. Since we published the remarks referred to, the Examining Committee of the Stockholders of the Eastern Rail Road, appointed on the case of Mr. Tuckerman, the Treasurer, have made their report, in which we find it stated that the whole of the embezzlement amounts to $245,203, or nearly a quarter of a million abstracted from the assets of the Company. It states, however, that he has given up a number of claims and rights to the Company, for its benefit. Connected with one of those claims are appended the following remarks:—"An investment of a kind and character, which, we are advised by the Counsel of the Corporation, cannot be disclosed even to us, without prejudice to the interests of the Company, and from which, we are assured, and have reason to believe, the Company may yet derive great benefit, involved, as Mr. Tuckerman declares, an original expenditure of $50,000."

This, we understand, is the claim for expenses in etherizing Congress, and from the somewhat mysterious language of the Report, we would infer that hopes are still entertained of getting the Congressional grant of $100,000. We think, the Company may give up all expectation of obtaining this snug little sum. We really hope the stockholders will not be deceived into any measure for advancing funds to obtain any of that which they have lost through their Treasurer, in etherizing Congress. We cannot conceive how they can ever obtain any of the Congressional grant, except by the collusion of interested parties; and they may depend upon it, that the public and the press will keep a sharp look out upon all their proceedings in relation to this matter.

The Contract System on the Canals.

During the past winter Wm. J. McAlpine, Esq., late State Engineer, and other associates made a proposition to the Senate, to keep the Canals of the State in repair for $700,000, per annum, $432,000 less than the cost of repairs for the previous year. This general proposition was not accepted, but a partial trial of the system has been made on section No. 1, of the Erie Canal. This section—18 miles long—has now been under trial since the opening of the Canal this season, under responsible contractors, and has been found to operate in the most satisfactory manner. The repairing for this section during each of the previous three years, cost $100,000, and the contract was taken to keep it in repair for five years for $43,000, per annum—saving to the State $57,000 each year. This section has been kept in better condition, and boats have experienced less delay and trouble in passing the Locks than during any former year.

The following is an extract from a recent Report of the State Canal Board, on the contract system, and shows what its members think of it:

"The continually increasing cost of the canal repairs admonishes us that this lavish expenditure must be arrested, and greater economy exercised in their management, or their revenues will be soon entirely swept away.

The results of the experiment of letting the repairs by contract, are thus far of the most encouraging character, and affords strong grounds of hope and belief that it will ultimately be found to be the only system under which the canals of our State can be made productive of revenue."

Turnips may still be sown in the middle of this month, and produce a good crop before winter. Late turnips are often the best.