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THE CENTENNIAL EXHIBITION.—THE CAMPBELL PRINTING PRESS.

About 200 feet west of Machinery Hall, upon a commanding eminence, is situated the building illustrated on page 391, volume XXXIV, which has been erected by the Campbell Printing Press Company, at their own expense. On one floor of the building are ten of the different styles of printing machines manufactured by this company, the most noticeable of which is the perfecting and folding press. This machine uses duplicate forms, and is claimed by the inventor to print on both sides, from a continuous web of paper, fold, lay away in piles, and count 30,000 copies of an ordinary daily newspaper per hour: a figure which will be readily comprehended when reduced to 500 sheets per minute, or 8⅓ per second: and, as they are printed on both sides, it is equal to 16⅔ impressions in each second of time.

Our illustration shows this machine in perspective; on the right is seen the roll of paper from which it is fed, with spare rolls ready to replace the one in process of being printed on. From this roll, the paper passes, first to the upper, then to the lower impression cylinder, and thence on to the left side of the machine, where it is cut, folded, and counted, which latter operation is recorded on the register shown just above the pile of paper on the front.

When the rotary press of Richard M. Hoe was the acknowledged fastest press of the world, the paper was printed on one side only; it needed a second feeding through to perfect it, and required as many feeders as the machine contained impression cylinders, which, in the largest size, were ten; and as the sheets from each cylinder were laid away by a separate fly, there was no difficulty in disposing of any number of sheets properly, as fast as the machine could print them. But when the perfecting or web press had been so far improved as to overcome the difficulty of preventing the offset of the ink, there was a difficulty in disposing of the sheets as they came from the press. In the printing of a newspaper at the rate above-mentioned, the paper must issue from the machine at the rate of nearly 2,000 feet per minute; and for laying away in an orderly pile such sheets of paper, issuing from a machine and succeeding each other at the rate of 8 or 9 in a second, the ordinary fly was out of the question. The Campbell press not only lays the sheets out in perfect order, but folds them twice, thus dispensing with one of the most vexatious and costly (in point of time wasted) suffixes to the labor attaching to the newspaper printing press.

Underground Pumping.

At a recent meeting of the Society of Engineers, London, Mr. V. Pendred, President, in the chair, a paper by Mr. Henry Davey, on the underground pumping machinery at the Erin Colliery, Westphalia, was read. The paper described what is probably the largest example of underground pumping engines extant. The system, which was originated by the author, may thus be briefly described. In the mine (which is 1,200 feet deep), 920 feet from the surface, is placed a pair of compound differential pumping engines, capable of raising 1,400 gallons per minute to the surface, at the same time supplying power through the medium of the rising column to two differential hydraulic pumping engines placed at the bottom of the mine, and employed in lifting 1,000 gallons per minute to the main engines. Steam is carried down to the main engines, from the surface, at a pressure of 70 lbs. per square inch. After passing through the engines it is condensed, and a vacuum of from 24 to 26 inches of mercury is obtained by means of a separate condenser which produces at once the vacuum on the engine, and enables it to start to work against the full column. The methods of actuating the valves in the steam and hydraulic engines were fully shown. In the latter case the valves are worked without any metallic connections, by means of a modification of the differential gear. The paper was illustrated by detail drawings of the steam and hydraulic engines, and also of the separate condenser, as well as by working models of the machinery

American Kaolin.

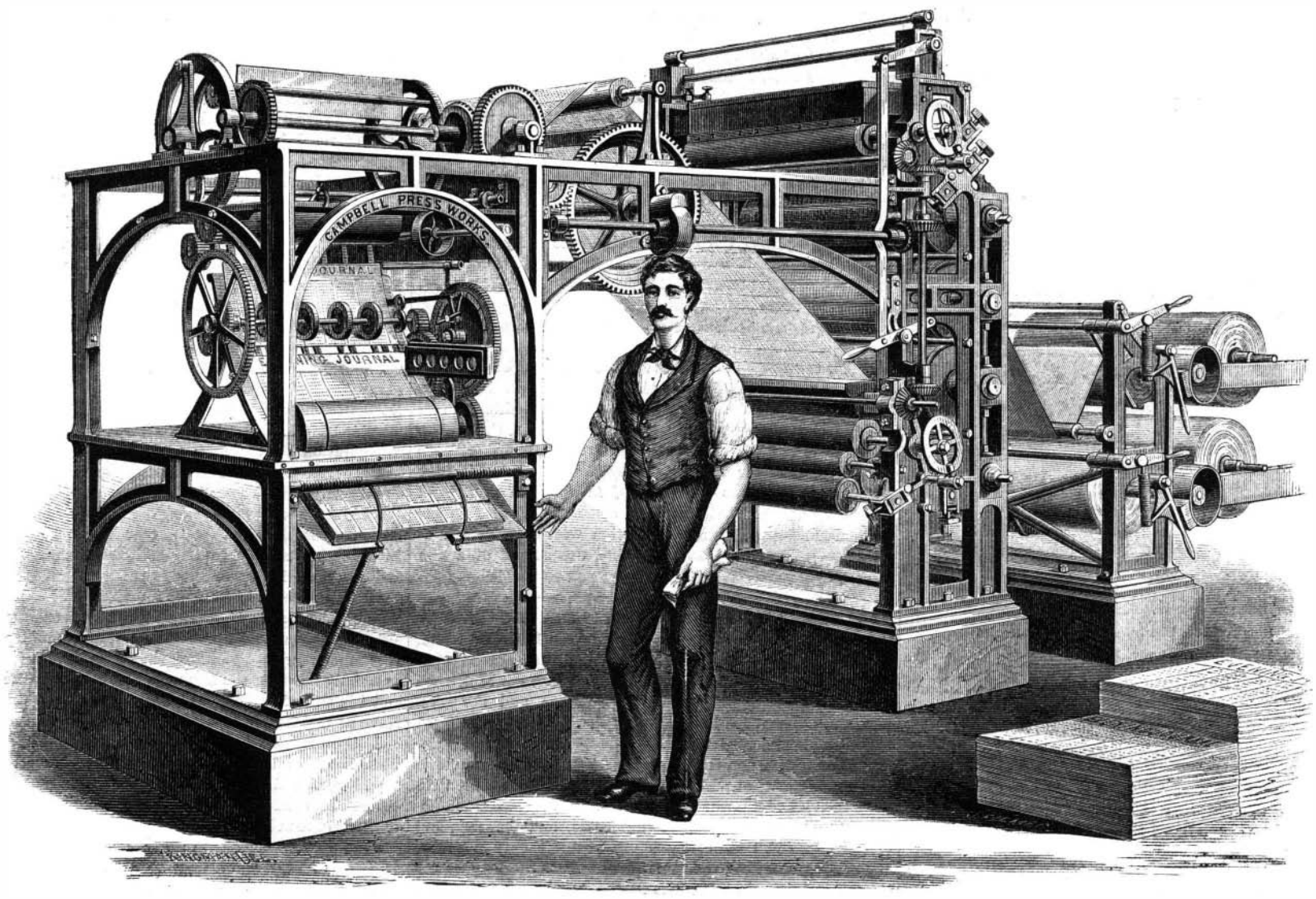
About a year ago, in describing the process of manufacture of porcelain, in the vicinity of this city, we called attention to the fact that beds of kaolin undoubtedly existed in this country, and all that was required was the enterprize necessary to develop them. There is every inducement, both in the shape of a demand for the material by potters and of a protective duty of $5 per tun, to attract our citizens to obtaining from our own resources the clay which now is imported from England, and, at the same time, there is the higher incentive of aiding in building up an American industry to supply us with the manufactured products which we now principally buy from France.

Since the publication of the article referred to, many of our readers have informed us of kaolin beds, located in various parts of the country; and this information has been, in the columns of this journal, laid before porcelain makers. The trouble, however, with most of the native deposits is the impure nature of the material. To make fine porcelain, which must rival in purity and whiteness the famous productions of Limoges and other French towns, the material must be strictly pure. Clay that is coarse and contaminated with metallic oxides serves well enough for opaque stone ware, and we have never heard that any lack of that substance has been encountered; but it should be borne in mind that such will not answer for fine goods of the kind wherewith our potters hope successfully to compete against foreign manufactures, at least until some one discovers an excessively cheap and perfect method of purification. It is cheaper to import the English clay, a fact obvious when it is considered that the merest admixture of ocularly imperceptible iron impurities in the paste results in the finished goods being blotched with ineradicable spots, and of course in their ruin as first class marketable articles.

Whether the large deposits recently found in Illinois will turn out of sufficient purity for general use, we are not yet prepared to say. Mines of kaolin have been discovered over 120 acres of Union County, Illinois, and in adjoining localities; and a town named Kaolin has there been established. We are indebted to Mr. Moritz J. Dobschütz, the owner of a large portion of the tract, for samples of the material, and for information relative to the mines. The kaolin is of a pure white, blue, white and pink quality, and appears sometimes naked to the eye, and sometimes in pockets 60 to 70 feet deep. Mr, Dobschütz states that there is every facility for the establishment of a pottery in the vicinity.

Electroplating of Leaves, Insects, etc.

A new and improved method of metallization of organic substances, so as to fit them for receiving galvanic deposits, has been devised by M. Cazeneuve. It is both more rapid and more safe for the operator than the ordinary way. The nitrate of silver which serves for the metallization is dissolved in wood spirit, by which means a thorough impregnation of the object is obtainable. After maceration (more or less) the object is dried through rapid agitation, but while still moist it is submitted to a saturated solution of ammonia gas, and thus is formed a double nitrate of silver and ammonia, easily reducible. Drying is then completed at a mild temperature, and the object is then suspended in mercurial vapors and completely metallized in a few minutes. By this method, the author says, he has obtained a regular layer of copper on leaves, flowers, insects, etc.



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