Recent Foreign Inventions.

PAPIER MACHE.—Mr. C. F. Bieleteld, of London, obtained a patent for an improvement in the manufacture of papier mache, an article which has recently received considerable attention in our country. The accompanying description is a clear abstract of the patent as specified, and it will be found extremely interesting not only to the few who have recently introduced the manufacture into New York, but to hundreds of our readers beside, for it is very evident that the substance here described can be plentifully manufactured in the United States, and applied to a thousand useful purposes.

"Sheets of papier-mache, of considerable thickness, have been commonly produced by causing numerous sheets of paper to be successively pasted together and dried, until the required thickness of sheet is obtained. The desired thickness of sheet has also been obtained by piling a suitable number of sheets of paper in a wet state (as they come from the paper-mould or seive), one upon another, and then expressing the water by a press, and drying the sheet, so produced, whilst in a state of compression, between metal plates. Sheets of less thickness have been made by running the pulp on to a mould or seive, having a frame thereon corresponding in depth to the thickness of sheet required, and then pressing such sheets between felts and drying them. Moulded ornaments, and other articles of papier mache have been usually manufactured by reducing fibrous and other matters by grinding, in a suitable machine, to the consistency of stiff dough or putty, and then moulding and drying the same.

The above remarks are made in order to point out more clearly, the nature of this invention, which consists in rolling or pressing fibrous and other matters, ground to the state of stiff dough or putty, into sheets, and treating such sheets with oil and heat, in like manner to that in which sheets and moulded articles of papier-mache, made by the above methods, have been heretofore treated.

Either flat or roller presses may be used in carrying out this invention. The press which the patentee prefers to employ consists of a rectangular moving table, with a pressing-roller above it. The table has a rack on each side, and is supported in such a manner that it may be moved to and fro at the same surface speed as the pressing-roller; for which purpose two cog wheels are fixed on the axis of the roller, and gear into the racks affixed to the table; and the roller is kept pressed down upon the table by weighted levers. The table supports a wooden platform, somewhat larger than the intended sheet of papier-mache; over this platform is spread a sheet of moistened canvass or other suitable fabric; and upon the fabric is laid a rectangular or other frame of wood, corresponding in height to the thickness of the sheet of papier-mache, or substance in the nature thereof, to such an extent, that considerable pressure will be necessary to reduce the same to the level of the frame. Over the composition another sheet of moistened canvass or other fabric is laid; and then the pressing-roller being caused to rotate, the table carries the platform, with the plastic papier-mache thereon, beneath the roller. The composition is passed several times beneath the roller, until it is considered to be sufficiently pressed; after which the upper sheet of moistened fabric is removed, and a flat frame or rack of wood (composed of numerous bars) is laid upon the sheet of papier-mache; then the wooden rack and platform, with the sheet of papier-mache between them, are turned over; and the platform and the first-named sheet of canvass are now removed,—leaving the papier-mache upon the rack to dry. During the process of drying, the sheets are turned over from time to time; and the patentee prefers, when time and season will permit, to dry by the ordinary atmosphere in sheds, or otherwise in rooms, heated to a slight degree above summer heat: the longer the time allowed for drying the better will be the result. The sheets, by day, are placed in a stove, heated from 150° to 180° Fah., and left therein until heated throughout; and they are then immersed in boiled oil, which is kept at a temperature of from 150° to 180°. The sheets are kept in the oil for a greater or less time, according to the thickness thereof and the degree of saturation desired; for sheets of one inch thick, half an hour has been found sufficient. After saturation with oil, the sheets are again dried on racks, either by the atmosphere in sheds or in heated rooms; and when they appear to be dry, they are kept for some time in a stove, heated to 180°.

The patentee states, that the above is the practice pursued by him when the sheets are to be used for forming partitions in steam and other vessels, and for panelling and other work of the cabins of such vessels, or the parts of railway and other carriages, and for making furniture and other structures where it is desirable to use a material that shall be little affected by extremes of temperature.

The sheets, produced as above described, may be cut into the desired forms, and framed together in panels or otherwise; and the surfaces may be planed, smoothed, and polished, as when operating on other papier-mache; and they may be varnished without painting in which case various effects may be obtained by mixing colors with the fibrous materials employed; or the papier-mache may be painted and ornamented in like manner to carriage-painting. Various compositions of fibrous with other matters may be used in carrying out this invention; but the patentee prefers the following, although he does not confine himself thereto:—He makes a paste by boiling together 80 lbs. of water, 32 lbs. of flour, 9 lbs. of alum, and 1 lb. of copperas; with this paste he mixes 15 lbs. of rosin, dissolved by 10 lbs. of boiled oil, adding 1 lb. of litharge; and then he adds to the mixture from 55 to 60 lbs. of dry rag-dust or other suitable fibre, and grinds the whole together. He has found that paper makers' "half stuff" or pulp may be used, when deprived of fluidity to such an extent that it is of a like consistency to stiff dough or putty. When size is used in preparing the fibrous and other matters, it is best to employ a hollow pressing roller, heated by steam. In the manufacture of sheets of papier-mache by the above process, if one or both of the fabrics, which are used when pressing, be left adhering to the surface or surfaces of the sheet, instead of removing the same previous to drying, the fabric or fabrics will continue to adhere when the sheet is finished and form part thereof.—[Newton's Journal.

Early Days of Steam Navigation.

Charles King, L. L. D., President of Columbia College, recently delivered an address before the Mechanics' Society of this city, in which are some very interesting reminiscences of early steamboat navigation in America, which we present in a condensed form, and which will be of great interest to our readers.

"Let us go back to 1806, from which dates the era of steam applied to navigation, and the great discovery—for the successful application of a known force in a new manner, and to new and before unthought-of purposes, may justly be styled a discovery—belongs to our city, of which the first Fulton was a resident, and from which the first boat—the Clermont—started for Albany on the 7th day of August, 1807. An hour might be readily occupied with the recital of the hopes and the fears, the almost angry doubts and the passionate sneers, with which the announcement was received that a boat without sails or oars was to be forced up the Hudson to Albany, against wind and tide, in a shorter time than was ever dreamed of, and all by the vapor which the housewife's tea-pot sends curling into the air, to vanish in an instant from sight. For, at that time, steam engines as applied to the various processes of manufacturing or other industry on land, were little known of generally, and the whole United States furnished but one machine-shop or foundry where a steam engine could be made, and that was opposite to this city, at Hoboken, in the works of Col. Stevens of whom—more anon.

But the Clermont, in the sight of a jeering rather than encouraging crowd, got under way, and slowly, very slowly, as we now estimate speed, forged ahead; Robert Fulton, and a few chosen friends and faithful mechanics only on board—for he refused passengers generally, only consenting, after much solicitation, to take six, of whom the late Selah Strong was one, and perhaps the first man who ever paid for a steamboat passage up the Hudson.

In 32 hours, running time, after stopping one night at the seat of R. R. Livingston, the Clermont made her appearance at Albany, having received in her fiery track along the river abundant manifestations of interest, astonishment, and even terror—and thereby securing the monopoly promised by act of Legislature to any persons who should accomplish the distance by steam between Albany and New York within 36 hours. The return trip was made in 30 continuous hours, averaging five miles an hour. The engine of this boat was made in the workshop of the famous Watt, at Birmingham.

None of the papers at that day described the voyage or alluded to it, but one, "The American Citizen," edited by an Englishman named Cheetham. The papers were engaged in disgraceful political quarrels, they could not talk of a steamboat, no, no.

The palm thus gained by Fulton was closely contested by John Stevens, of Hoboken, who, long in concert with R. R. Livingston and Robert Fulton, had made experiments in steam as a means of propulsion, but now aided by the genius and practical mechanical skill of his son, R. L. Stevens, was operating separately. Almost simultaneously, but yet behind by that fatal quarter of an hour which determines the fate of so many enterprises, and of so many human beings, both men and women, Mr. Stevens produced, independently of Fulton's plans and experiments, his steamboat Phœnix; but precluded by the monopoly which Fulton's success had obtained for him of the waters of New York, Mr. Stevens first employed her as a passage boat between this city and new Brunswick, and finally conceived the bold purpose of sending her round to Philadelphia by sea; and he executed it successfully. His son, Robert L. Stevens, went round with the boat in the month of June, 1808. A fierce storm overtook them. A schooner in company was driven off to sea, and was absent many days, but the Phœnix made a safe harbor at Barnegat, whence, when the storm abated, she proceeded safely to Philadelphia, and plied many years between that city and Trenton. Mr. Stevens thus earned indisputably the honor of first venturing and succeeding to encounter the might of the ocean with a steam propelled vessel. When the Phœnix went round to Philadelphia, the Atlantic, and no other sea, had ever known the domination of victorious steam.

The limit, the utmost limit of speed, to which Fulton hoped or thought it possible to attain, was nine miles an hour, and that he did in later boats, but it was again reserved for the name of Stevens, after long and numerous experiments cautiously conducted and tested, as to the form of vessel best calculated to overcome the resistance of the dense medium through which it was to make its way, to send forth on the Hudson—a boat as superior in size and equipments as in speed to all before it, and to travel at the rate of 13½ miles per hour. Even that is now slow, and the 150 miles which separate us from Albany are passed over by steamboats—not one but many—in eight or nine hours; and the actual rate of nineteen and even twenty miles has been attained by some of the later boats. But when the New Philadelphia, R. L. Steven's boat, in 1814, started off at the rate of 13½ per hour, even the senses were distrusted, philosophy, which had calculated only the resistance of the medium to the forms then used, was at fault, and what had been actually done was pronounced impossible. But the steady, far-reaching mind of the younger Stevens knew the secret of his success—that it was due to the form he had given to his vessel. He saw too, after some trips, that even that form was far from the perfection he had designed, and accordingly he went to Brown & Bell, then, and even yet I believe, eminent ship builders, and begged them to put on the New Philadelphia a long, sharp false bow, of which he gave them the drawing. After considering the proposition, they declined, declaring themselves unwilling to encounter the redicule of what struck them as so unseemly a work, and Mr. Bell added that it would be called Bell's nose, and would be the general laughing-stock. Repulsed, but not disconcerted, young Stevens, sure of his own conclusions, built a false bow at his own shop, put it on, and obtained in consequence an additional speed of several miles the hour. With the New Philadelphia commenced the first day line to Albany.—This was the commencement of the new models, which, alike in clippersteamers and clipper ships, have given to both classes of our build and navigation—for there is a great deal, too, in the latter—our superiority over the world.

By the lucky quarter of an hour, Fulton carried away from Stevens the prize of the first successful steamboat. But years before, viz. 1804, Col. Stevens, whose fertile and ingenious mind was specially turned to mechanical inventions, had constructed and put into operation a steamboat of which the motive power was a propeller, the propeller which at this day I believe is admitted in form and proportion to be the best. This boat was a small one. In it Col. Stevens put an engine with tubular boilers, the first ever made, now universal in locomotives. The machinery, made under his own direction and in his own shop at Hoboken, set in motion two propellers, of five feet diameter each, and each furnished with four blades having the proper twist—to obtain which he had the greatest difficulty with his workmen—and set at an angle of about 35 degrees. This vessel—used only for testing the possibility of steam-navigation—so completely demonstrated the fact that Col. Stevens applied it on a larger scale in 1806, to a pirouge, 50 feet long, 12 wide, 7 deep—which attained very considerable speed. Encouraged thereby, he commenced the Phœnix with side-wheels, to whose success allusion has already been made. It is proof of the remarkable accuracy and skill of the Hoboken workshop, that the engine of the first small propeller, carefully preserved, was set up again not more than 10 or 12 years ago, in a new vessel, and, without altering a screw, worked most successfuly. The old hull and the blades of the propeller are yet in existence at Hoboken.

Not the least useful purpose to which steam was applied, about those times, was to the ferry-boats, which dart at all hours across the rivers, separating at once from, and binding us to the shores opposite our Island.

The first step in advance was the introduction of horse-boats, twin-boats with the wheel in the centre, set in motion by a sort of horizontal tread-mill wheel on which horses were made to step. For horses, steam was substituted; first by Fulton at the Fulton Ferry. Then came the single boats, with side-wheels, and propelled by steam, of which the first was the Hoboken, by R. L. Stevens, in 1822. She still is at work, enlarged and sound as ever, and much faster than at first. As indispensable to the new ferry-boats, came—of Fulton's devising—the floating bridges at the ferries which rise and fall with the tide, aided by counterbalancing weights on shore; an invention ingenious in itself, and, as I have said, the indispensable complements of steam ferry-boats. The spring piles now used to deaden the force of the blow as the boat approaches the ferry, and to direct her course aright, are due to R. L. Stevens, who introduced them in 1822.

In the year 1818, the Savannah, a New York built ship, with side wheels and propelled by steam and sails, went hence to Petersburgh, via Liverpool, and returned safely; and a year later, the Robert Fulton, built by Henry Eckford, under the superintendence of Jasper Lynch, for David Dunham, plied as a steam-packet between this city and New Orleans, but, the business not paying, her engines were taken out and she was sold to the Brazilian Government as a ship-of-war, being of 700 tons. I have a memorial of this ship, as it were from the grave. [The lecturer here unrolled and exhibited to the audience, a colored drawing of the Robert Fulton, made in 1821—deposited under one of the marble columns erected that year in the South entrance of the Park, and disinterred, uninjured, in 1848, when those columns were removed.]

Thus, it may be said, in every sense of the word, 'America is the mother of steam navigation,' tubular boilers and propellers."

A track of rails has been laid on the ice over the Susquehanna river at Havre de Grace. The trains pass over it without delay.