The Inventor of the Steam-Engine.

"Lives of great men all remind us,
We may make our lives sublime,
And departing leave behind us,
Footprints in the sands of time."

Men differ from one another in greatness as the stars do in glory. Some are brilliant as solar orbs and emits a splendor of their own; others are like planets, which exhibit a beautiful but borrowed light; while others, again, twinkle only as feeble asteroids, almost defying the powers of the telesoope to recognize. Among the great shining lights that have reflected a power of their own upon this earth, James Watt, the great inventor of the steam-engine, occupies the elevated position in practical mechanics which Sir Isaac Newton does in natural philosophy. In the accomplishment of great results affecting all classes of society in multiplying the productive powers of industry and art, he stands high above all other men, as Saul stood above the tribes of Israel. Thus premising, we are led to a brief consideration of this subject by a perusal of his biography, in its abbreviated form, by Muirhead, just re-published by D. Appleton & Co., of this city, and forming a most valuable addition to our useful literature. From it we learn that this great inventor and mechanician was born in January, 1736, in Greenock, a seaport town in the west of Scotland, and being of a delicate constitution, he received most of his youthful tuition from his father aud mother at their fire-side. An early display of talent for mathematics and mechanics was cultivated with assiduity, and, when quite young, he constructed various ingenious machines and instruments. During a single year's instruction in the city of London, as a philosophical instrument maker, he became as skillful a workman as several journeymen in the same shop who had been engaged at the business for ten years. After this he came to the city of Glasgow, was furnished with a shop within the College walls, and received the title of mathematical instrument maker to the University. Here his talents were early appreciated by the professors and students, especially by Dr. Black, the father of modern chemistry. It was while repairing a model of Newcommen's atmospheric engine (which was used in lecturing by one of the professors), that he invented the "separate condenser" to the engine, and thus changed its whole character and quadrupled its powers. Of all the inventions which the ingenuity of man has devised, it is the most wonderful and useful. It greatly resembles the human body in its mode of operation. The cylinder, like a great heart, receives the steam by throbbing valves, and it becomes animate with power and motion—forging a needle, spinning at silken cord, weaving a carpet, knitting a stocking, propelling the majestic steamer aoross the ocean, and the rolling car over the iron-bound course through forest, field and prairie. So practical and synthetical was the genius of Watt that he constructed the seam-engine and left it very nearly as perfect as we now have it, except in its adaptibility and application to railroads. It is not possible for us to estimate the value of the benefits which his inventions have conferred upon mankind; we can do but little more in our brief space than acknowledge their importance.

The old atmospheric engine, as Watt found it, was single-acting. Steam was admitted under the piston into the cylinder, then cut off, and a jet of water then condensed it, when the piston descended; then the water was let out, steam again admitted, and so on continuously, wasting an immense amount of time and heat.

The manner in which his invention originated was pecular. The model of the atmospherio engine which he was employed to repair having greatly excited his mind, he examined it thoroughly, and soon comprehended its entire principle of action. He became satisfied that it was radically defective in some points; that it wasted an immense quantity of heat, and that it could not be made to operate rapidly by any arrangement whatever, owing to the suocessive heating and oooling operations in the oylinder at every stroke. Occupied with suoh thoughts he took a walk out into the green fields, and during his meditations, the idea of condensing the steam in a separate vacuum vessel flashed across his imagination like a gleam of lightning. Almost as soon as this thought entered his mind he mentally arranged mechanical devioes to test it, and by next day at noon he had a rude model constructed, and proved the value and correctness of his grand conception. After securing a patent, he found it very difficult to get a person of sufficient wealth and enterprise to engage in building large engines. This, however, he at last fortunately secured in Mr. Bolton, a wealthy Birmingham manufacturer. The first engines they built were for pumping the deep mines of Cornwall, and they were sold under the most favorable and honorable conditions; the tax asked for their use being one-third of the price of the fuel which they saved annually. After their value and usefulness had been established there were several parties who were mean enough (even when making fortunes by their use) to try and cheat him out of his rights, just as there are parties who try to cheat inventors at the present day. On this account he was involved in several lawsuits, and on one occasion had to pay $30,000 for London lawyers' fees alone. This he considered a great extortion, but he bore

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it with considerable fortitude; and we advise those interested in the celebrated "Hook-headed Spike Case" (now eleven years before our United States courts) to exercise, in their weary pilgrimage through the winding avenues of legal prosody, the same spirit.

It affords us pleasure to state that the last days of this great inventor were spent in comparative wealth and tranquility of mind. Long after he retired from business, he kept on inventing for his amusement; and he used his tools, bench, workshop and leather apron to the very last month of his life. At 80 years of age he invented a machine for copying busts, and his first production in this line he presented to a friend, remarking, with his usual quiet humor, "by a young engraver in his eighty-second year." He was also the inventor of the copying-press, an invention now universally used. He could construct a telescope, a parallel ruler, an organ, a violin, a clock, a bridge, and a steam-engine with equal facility. He was undoubtedly the greatest mechanic that ever lived, and his knowledge on all subjects was wonderful. He could speak aud write French, German and Italian; he understood music, chemistry, anatomy and geometry, in short, he was a prodigy; yet he was a most modest, honest and kind-hearted man. He was offered a baronetcy by the king, but he refused the honor—it could not add to his fame or character. He did more for the world than all the generals and statesmen that ever lived; and although several monuments have been erected to his memory since his death, which ocourred on the 19th of August, 1819, yet he needed them not. Wherever we see a steam-engine, there is a monument to JAMES WATT.

Inventor of Friction Matches.

If we would estimate the greatness of an invention by its usefulness, the discovery of friction matches was certainly one of the greatest of modern times. According to recent English papers, the inventor of friction matches was John Walker, a chemist of Stockton, England, who died on the 5th of last month at the advanced age of 79 years. He made the discovery nearly half a century ago while experimenting with various chemical substances, and for a number of years he realized a handsome income from the sale of matches at the price of about 36 cents a box, which was no larger than those now sold for one cent each. The first patent obtained in America for friction matches was by Alonzo Phillips, of Springfield, Mass., in Oot. 1836. It was only claimed as an improvement, and not an orignal discovery.

We see by an advertisement in our oolumns that photographs of the Corliss engine are for sale. This is a good idea, as so many persons want to know what they are like, and cannot make a journey to see one.

Correspondents

*** PERSONS who write to us, expecting replies through this column, and those who may desire to make contributions to it of brief interesting facts, must always observe the strict rule, viz., to furnish their names, otherwise we cannot place confidence in their communications.

D. P. F., of ——. We think a patent can be obtained for your invention. A model of a wheel showing the arrangement of the two plates will be required for the Patent Office. You failed to inform us where you reside, therefore we could not write you.

G. A R., of Pa.—Picture frames are gilded by being first covered with parchment size and the gold leaf laid and burnished with a suitab'e tool.

J. E., of Ohio.—You will find in "Phillips' Metallurgy" a full account of the process of smelting silver: it would take up too much of our space to give you all the necessary instructions. The book may be procured from H. Balliere, bookseller, of this city.

G. W. G., of Miss.—Your plan for a perpetual motion is principally like all others in one respect, and that is it will not go.

J. L. T., of Conn.—For obtaining a knowledge of elementary chemistry, we strongly recommend you to procure Wells' Principles of Chemistry, published last year by Ivison & Phinney, of New York. It is the latest and best work out, and contains much that you will not find in the older treatises.

J. M. D., of Va.—The hands of watches are stained red by a lacquer made of common lac-varnish colored with carmine. You can easily make some of it and test the matter for your own satisfaction. This color soon wears off, and its application to watch-hands is not commendable.

E. H. A., of Ill.—Soap suds containing some diluted tobacco juice is an excellent wash for destroying bark lice on apple trees; apply it with a tin-pail, which has a perforated spout.

J. W. J., of Fla.—There is no published work which treats of painting, graining, mixing of colors, and the staining of wood to imitate mahogany, rosewood &c.

F. L., Jr., of Pa.—We answered your former letter by mail several days ago. Inquire at the Post-Office.

S. B., of La.—A siphon cannot be made to discharge above the line of its shortest end. No improvement has been made on such instruments, so far as we know, during the past twenty years.

J. M., of Ind.—Map varnish is made by dissolving Canadian balsam in rectified spirits of turpentine, but you can purchase such varnish cheaper than you can make it of persons who supply painters materials. Gum mastic and pale seed-lac dissolved in alcohol make a good varnish also.

J. C., of New York.—Gum arabic is unsuitable to mix with gum-resins, such as lac and copal, in making varnish. "French polish" is a varnish made by dissolving pale shellac 5 lbs., gum mastic 7 oz., in about six pints of alcohol. Dissolve the gums cold, and stir them frequently until the solution is complete.

D. S., of Phila.—A spiral wheel fitted into a frame of a balloon and capable of being turned by hand to assist the æronaut in ascending and descending, has been tried by Capt. Taggart, of Lowell, who made several ascents, and operated it with tolerable success.

G. H. G., of N. H.—Smee's Electro-Metallurgy, published by J. Wiley, this city, contains the information you want on electro-plating.

J. B., of Boston.—We understand that the decomposition of nine grains of water 108 grains of silver will be deposited from 134 of the cyanide; that is according to their chemical equivalents. The articles you refer to on electrotyping were published in Vol. VI. of the SCIENTIFIC AMERICAN.

B. H. & Co.—There will always be a diversity of opinion about the rate of speed at which saws should be run, because the speed depends on the kind of wood to be cut, and the order in which the saws are kept.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, May 28, 1859:—

A. P., of Wis., $37: N. H., of N. Y., $30; W. H., of Ga., $30; J. P., of N. Y., $30; P. & B., of Iowa, $20; J. W. N., of Ct., $10; D. A. W., of Ga., $30; S. V. R. N., of N. Y., $25; W. W. L., of O., $250; J. A., of N. Y., $25; J. F. S., of Mass, $25; D. B. R., of Ill., $25; J. W. N., of Russia, $100; L. B. J., of Mass., $30; W. H. B., of Iowa, $25; C. & B., of Ct., $30; A. G. M., of N. Y., $50; R. W. C., of N. Y., $25; J. P. P., of N. Y., $30; D. E. B., of N. Y., $25; E. A. T., of N. Y., $25; J. W. S., of Me., $25; J. W., of Va., $55; H. & G., of Pa., $40; S. A., of S. C., $55; J. C. S., of Mass., $275; F. C. S., of N. Y., $30; E. H. A., of Ala., $25; W. P. V., of Me., $40; P. J. C., of Ct., $15; T. M., of N. Y., $25; E. O., of Mass., $30; W. & S., of Cal., $50; H. D., of Pa., $30; D. A., of Mo., $25; H. K. S., of Mass., $25; J. G., of Pa., $25; G. A. T., of Pa., $55; H. & H., of Mich., $12; H. S., of O., $15; E. B., of Pa., $25; H. & K., of Mass., $57; O. P., of N. Y., $30; T. & B., of O., $30; T. C., of Pa., $30; A. B., of Ala., $55; A. M., of Ind., $27; N. & M., of Ill., $30; W. G., of Mass., $25; T. & C., of Ind., $30, N. B., of N. Y., $30; J. P. of Cal., $25; C. P. B., of O., $30; C. T. P., of N. Y., $100; B & B., of Ind., $30; W. S. H., of N. Y., $25; J. H. of N. Y., $35; C. T. P., of N. Y., $50.

Specifications drawings and models belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, May 28, 1859:—

P. & B. of Iowa; M. B. of Ill; J. A. of N. Y.; D. K. of Va.; J. K. L. of O. T.; W. S. H. of N. Y.; C. T. B. of N. Y.; A. T. U. of N. Y.; A. P. of Wis.; J. C. G. of Cal.; T. M. of N. Y.; S. K. W. of R. I; S. A, of S. C.: E. A. T. of N. Y.; E. B. of Pa.; A. M. of Ind.; S. V. R. N. of N. Y; W. H. B. of Iowa; R. W. C. of N. Y.; J. W. S. of Me.; M. B. of N. H.; J. F. S. of Mass.; H. K. S. of Mass; C. P. B of O.; J. P. of Cal.