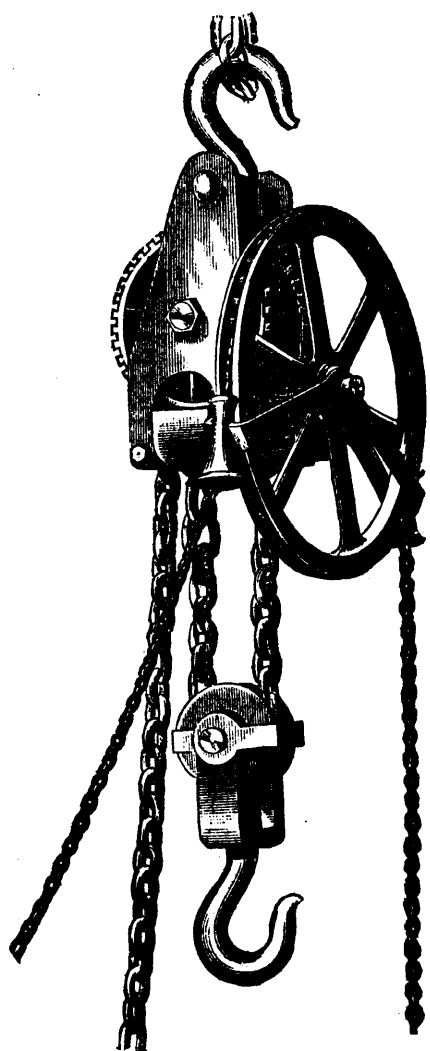


Technology.



BOX'S PATENT DOUBLE SCREW HOISTS.

We herewith illustrate a Double Screw Portable Hoist, recently patented by Alfred Box & Co., Philadelphia. The machine may be described as follows: A wrought-iron frame, with swivel hook to attach it to any support. A large lifting wheel, driven by the rim on either side, by two screws, and gears driven by a centre gear wheel on hand chain wheel. A base, with hardened bearings where the screw shafts run, and forming oil cup where the screws act on the lifting wheel. The latter has very deep teeth in the centre, and the large chain, passing slowly over it, makes the wear upon both scarcely calculable. A projecting stud from the base carries the hand chain wheel and the chain guide. The leverage of the two screws driving the rim of the lifting wheel, is very great indeed. The screws run in oil, fed from the oil cups which form part of the base. The large chain passes through eyelet holes in the base itself, the holes forming perfect guides to the chain, while they also keep it in place under all circumstances. The advantage claimed for this hoist by the makers are many: Its size and portability. It is short and can be used for low lifts. It weighs very little, and can be moved about easily. There is no waste of material, as every part of the machine is brought into active service, and makes it apparently very strong. There is no friction of chains or parts, and if the hoist be used inverted, the action is the same. It will sustain the load at any desired point, but will lower rapidly when once started. It is always ready for use, and can be used horizontally, or even inverted if necessary.

TECHNICAL NOTES AND COMMENTS.—From foreign sources, we learn that the French Academy of Sciences has awarded an extraordinary prize of 3,000 francs to Dr. William Crookes, in recognition of his distinguished services to science by his studies in molecular physics, and his contribution to our knowledge of the properties of radiant matter.—M. Clamond, a French electrician, is reported in *La Nature* to have devised a *thermo-electric pile* upon a novel principle, which is capable of yielding electrical currents of considerable tension. A large instrument of this kind has been successfully employed to run several electric lights.—Mr. Lockyer's views, based on spectroscopic observations, of the compound nature of the chemical elements, appear to be steadily gaining ground. The last issue of the *Journal of Science* contains a review of Mr. Lockyer's methods and results, presumably from the pen of its editor, Dr. William Crookes, which, while not giving complete adhesion to Lockyer's views, consider them as probably correct.—The Belgian Government is reported to have decided upon the abandonment of wooden railway sleepers, and the adoption, instead, of those of iron, an example which, it is thought, will be largely imitated.—Recent analyses of the anthracite coal of Valois, Switzerland, show a very close resemblance to that of Pennsylvania. Trials with American heaters show that it can replace the Pennsylvania coal. It has also been successfully tried on locomotives.—The American Watch Company, of Waltham, Mass. has just received another order (the third) from the British Government for a large number of watches, intended for the use of engineers, conductors, station-masters, and other employees of the state railroads of India. This contract is a notable triumph of which the company has reason to be proud, as it was gained in open competition with foreign manufacturers.—The recent invention of an imitation of stained glass, consisting in applying to the glass to be decorated thin sheets of silk paper, printed with brilliant oil colors, is favorably spoken of as giving admirable results.—An international exhibition of earthenware, chalk, cement, gypsum, and cement industries is announced to be held at Berlin, to open on the 29th of June, 1880, and to continue until the 10th of August following. Herr Paul Loeff is the President of the Committee of Arrangements, and may be addressed at Berlin by intending exhibitors. This same Herr Loeff, by the way, is the inventor of a pottery kiln which he took pains to inform the public in his circulars was not medaled at the Centennial Exhibition.—During the past week, the Congressional Committee on the Inter-oceanic Canal has been busy listening to the arguments of De Lesseps, Captain Eads, and others, for and against the several projects that have been presented in this department. Whether any decided action in the premises will be taken is at present uncertain. The present disposition seems to be to regard the project of De Lesseps as a private enterprise, which, at the present time, would not warrant the interference of this government.

HARDENING AND TESTING.—To really test the hardness of the surface of metal, we must take a new or at least a good dead smooth file and apply one corner of it to a corner rather than on a flat surface of the metal to be tested, pressing the file very firmly against the work. A coarse file, even if a new one, is useless to test with. The greatest degree of hardness is obtained by plunging the red-hot steel into mercury. Steel hardened from the surface inward is hardest on the surface, while in steel that has been tempered the exterior is the softest. In the one case because the surface was cooled in advance, in the other because it was heated in advance. Files are hardened in the following mixture: 2 parts (by weight) of salt, 15 parts of rye grist, and 30 parts of burnt cow hoofs, all ground together and mixed with a sufficient quantity of water to make a pasty mass, with which the files are covered. When dry, they are placed in a fire. If, during the heating, the coating should drop off at certain places, the files are promptly withdrawn and the place exposed is covered with dry hoof powder. It is returned to the fire, where it is left until a temperature is reached which best suits the steel of which it is made. Then the file is plunged vertically into the bath, care being taken not to move them to the right or left, as that would cause warping. The bath is made in the following manner: 28 parts of salt are dissolved in about 5 parts of water, to which a handful of iron scale is added. The tongs are softened by being plunged into red-hot lead.

LARGE deposits of black sand, said to contain platinum, have been discovered near Olympia.