

Science and Art.

Glycerine; Its Uses.

In a paper read at the Glasgow meeting of the British Association, Mr. G. F. Wilson stated that this very remarkable substance might, by distillation, be obtained pure, in very large quantities, and showed it to be applicable to a variety of very dissimilar purposes, such as a solvent of quinine, as a substitute for honey in Shadbolt's process in photography, as a substitute for cod liver oil, as a cheapener of the alcohol used in spirit lamps, as a remedy for chapped hands, sunburnt faces, and for the irritation experienced by many after shaving, as a preservative of the colors of some objects of natural history, especially of the brilliant colors of the scales of fishes, &c.

Mr. Wilson's paper thus concludes:—

"Though a variety of uses for pure glycerine have thus been mentioned, yet when we consider its power as a solvent, its blandness, and freedom from all irritant, acid, and fermenting properties, we must feel that not a tithe of its uses have yet been developed.—Pure glycerine will hereafter be considered among the most valued of modern products; and produced, as it will be, in great quantities, it will be recognised in the arts, as well as in medicine, as a new real blessing to mankind."

Glycerine exists in fixed oil, lard, &c., and is obtained during the process of saponification. It is the fluid which is left behind in the mother liquid in making soap. It has a sweet taste, and is soluble in water, and on this account is used in perfumery for the hair. Its use is exceedingly limited, consequently it is sold by druggists at a pretty high price. According to Mr. Wilson, its virtues are numerous.

Saltpeter and Lead.

The materials of warfare—saltpeter, charcoal, and lead—having advanced since the commencement of the war, in the former instance to upwards of £10 per tun, and in the latter from £3 to £4, this progressive rise has produced a somewhat corresponding effect on the opposite side of the Atlantic, and has already begun to tell upon prices. Since the arrival of the *Baltic*, lead at New York advanced from 3d. to 3 1-2 per lb. The stock of saltpeter in America is small, consequently the upward tendency of price continues, although Congress, admonished by the deficiency of material during the revolution, as well as in the war of 1812, has for some 20 or 30 years past appropriated \$20,000, about £4,000, per annum for the purchase and storage of saltpeter.—This precaution is alleged to be expedient, as the most prolific mines on the tributaries of the Ganges are under the control of England.—[London Mining Journal.]

Improvement in Power Presses.

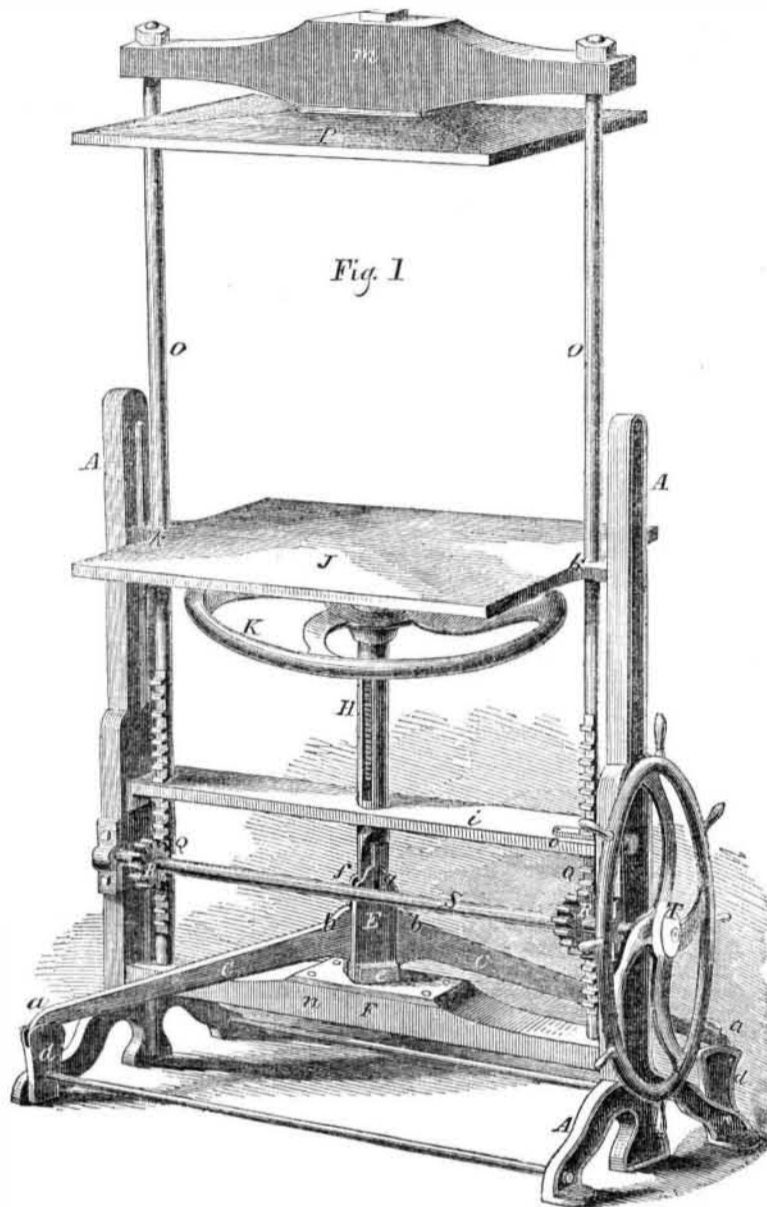
Figure 1 is a perspective view, and fig. 2 a section of the operating levers of an improved Press, for which a patent was granted to Elias Davis, of Montpelier, Vt., on the 23d of May, last year.

The nature of the invention consists in arranging a series of horizontal and vertical knuckle joint levers below the screw and the bed plate, and so combining them that as they operate, a powerful progressive upward pressure is exerted, and the article to be pressed is made to assist in pressing itself by its gravity.

A is the frame of the press; C C, are the two main knuckle joint levers placed diagonally across the press, *aa*; the outer ends of these levers are so formed as to fit snugly in, and are secured to sockets formed in top of levers D, fig. 2, *d*, fig. 1, and thus form knuckle joints. The lower ends of levers D, have semi-circular projections, *b*, fig. 2, on them, which fit into semi-circular sockets in the bottom of standards, *c*, forming knuckle joints also. The inner ends, *b*, fig. 1, *d*, fig. 2, of the main levers, C, play up and down in the central pedestal open box, E. F is a sliding frame of the press, and the box, E, is secured in the center of the lower sliding cross piece, *e*. The ends, *d*, fig. 2, of levers, C, have each two sockets formed in them—one at the top, the other at the bottom. The bottom sockets fit on semi-spherical projections in the bottom of

box, E, and form ball and socket joints. The top sockets of the ends, *d*, receive the spherical lower ends of two small knuckle joint levers, C C, also fig. 2. The upper ends of these short levers fit into corresponding sockets in the vertical hollow standard, H. All the levers are thus formed to work in knuckle joints. The standard, H, has two flanges, *f*, which fit in slots, *g*, in the sides of box, E; they

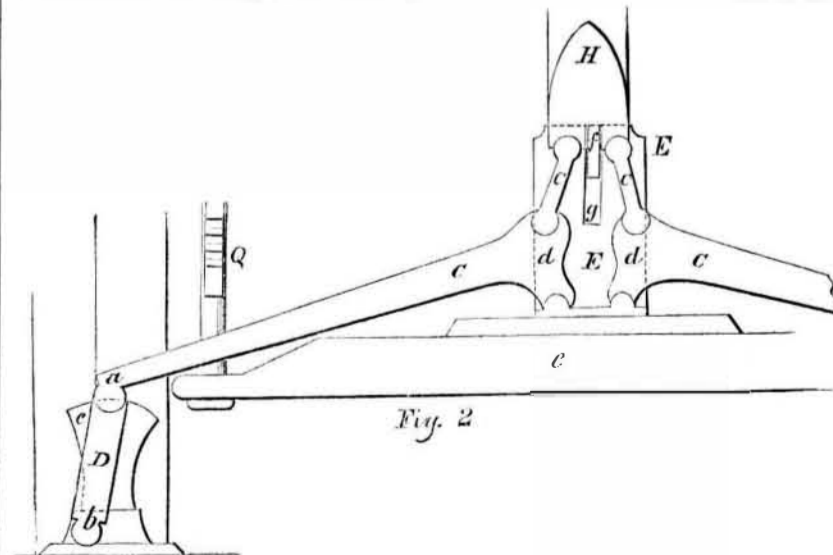
DAVIS' PATENT ACCUMULATING POWER PRESS.



work the screw of the standard to raise and lower plate J. The upper part of standard H, fits snugly into a recess in the hub of wheel K. By thus connecting the hollow standard, H, with the wheel, K, the power of the levers is transferred to the plate, J, to be exerted on the article to be pressed. O O are vertical rods of the sliding frame, F. They are united together at the top and bottom by the cross piece, *e*, fig. 2, *m*, fig. 1, and by a middle piece, *i*, through which the hollow standard, H, moves freely.

The top cross piece carries the pressing follower, P, which is secured to it by a ball and socket joint, not shown. The platform plate, J, has guide lugs, *k*, that serve as guides for the rods, O O, of the follower. Q Q are racks on those rods, and R R are small pinions on the shaft, S, of the lever wheel, T.

OPERATION.—The article to be pressed is placed on the platform plate, J, and the space between it and the follower, P, is blocked up, and the movable frame is then raised by turn-



ing wheel T. The small catch, *a*, fig. 1, on the center brace, *i*, is now inserted under a tooth of rack Q, and the sliding frame, composed of the rack bars and the follower, P, is held in position. The plate, J, is now raised by turning the nut wheel, K, when the small levers, C C, assume the angular position shown in fig. 2. The press being thus arranged with the article

to be pressed placed snugly between the plate, J, and the follower, P, the catch, *a*, is withdrawn from under the tooth of the rack, when the follower, P, gradually descends with its entire frame by its own gravity, pressing the article between it and the plate, J. The effect of the pressure upon the plate, J, is to thrust the large levers, C, into a horizontal position;

slide freely up and down as the levers are moved. By making H hollow for a certain portion of its length, it receives the screw (seen through the slot, fig. 1) which carries the plate, J; this screw raises or lowers the plate, J, on which the article to be pressed is placed. The screw works freely in the hollow standard. K is a wheel, the hub of which is bored, and has a thread cut in it, and operates as a nut to

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Iron Region of Lake Superior.

A correspondent of the *Detroit Free Press* writes as follows in regard to this section of country:—

"This is, emphatically, an iron country. In every direction where the steps of the explorer penetrate, iron ore of more or less purity is found. Its veins ramify through rocks and stones. The whole soil is impregnated, and frequently the sands of the shore are tinged with its oxyd. Boulders of iron are scattered at random. On the highest part of the 'Jackson mountain' I remarked them, bare and glistening in the sun. An Englishman, but just arrived in America, who has had long experience as a manufacturer, and has possessed facilities for extensive observation of iron mines in England and on the Continent, was directed by E. K. Collins to the iron region of Lake Superior. He came unbelieving, thinking the story of these iron hills was a 'Yankee humbug.' The utmost stretch of his expectations could not reach the reality which he found. He says that the truth, told in England, would be scouted as arrant imposture—that the 'iron men' of the Old World could not conceive of deposits of iron on such a stupendous scale."



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