

the whole force exerted, and that this pressure on the screw does not increase with the maximum exertion of the press, but is rather smallest at that point; and thirdly, that the gradual increase of the ultimate of gross pressure upon the platten, accumulates from a constant force, which may be applied to rotate the screw, in the exact proportion as that in which the resistance increases by the increasing density of the material under pressure. This effect is not produced by any other screw or hydraulic presses, wherein the relative mechanical advantage at any point of the stroke always remains the same. This sadly retards the speed of travel, until the platten of such an ordinary press gets home on to its work, and limits its maximum pressure to that arranged for by its proportions.

In the Boomer and Boschert Press, which Mr. J. H. Ladd, of Queen Victoria Street, is introducing into this country, the gross pressure produced on the platten is practically unlimited, since, theoretically, the gross thrust is infinitely large at the moment in which the toggle joints pass their dead centre. In order to be able to discern the pressure actually produced at any point in the process, an ingenious index finger is arranged over the head of the top frame. The deflection of the top frame, small as it is, is reproduced upon the lever, which may be seen extending across the top frame. This is again transferred to a second multiplying lever by a pressure close to its fulcrum. The actual motion or deflection of the top frame will be thus multiplied, apparently some 60 or 100 times, at the ultimate index finger of the top lever, and, after due experiment, this deflection may be registered and read as so many gross tons' pressure upon the platten.

The action of the screw is produced either by a hand-wheel or by a power-wheel driven by a gearing chain. For the last final pressure, when the toggle joints are nearly perpendicular, the rotation of the screw is produced by a lock hand lever and ratchet-wheel keyed upon the centre of the screw. The maximum pressure may be thus given deliberately and with due care and caution, which is frequently a most important point in the successful squeezing of oily substances.

Our illustration represents a press specially designed for extracting oils, lard, tallow, &c. By this arrangement the obstacle to pressing in bulk has been successfully overcome. It is well known that, in consequence of the material clogging in the centre when a large mass is subjected to great pressure, the liquid cannot be all extracted, and the plan has hitherto been adopted in this country of dividing the material into small quantities, involving a great amount of labour and outlay in extensive plant. In the arrangement before us, the material is placed in the circular space between a strong hoop and an inner cone. Both the hoop and cone are made of strong wrought-iron bars, having spaces between to allow the liquid to escape, from both the outside and inside of the mass. The hoop is constructed to open out so that the material can be readily removed after having received the necessary pressure. By this means a great saving is effected over the old-fashioned method of pressing between plates.

Special appliances are employed for cider and wine presses, whereby a saving in labour of 50 per cent., combined with an increase of 20 per cent. in pressure, can be obtained as compared with an ordinary press.

The rapidity with which the platten travels in the first portion of its stroke until it comes to the last final squeeze must very materially facilitate the rapid turn out of the work, and it is said that the work effected by these presses considerably exceeds that turned out by ordinary presses of equal size. Some idea of the power which may be exerted by these presses may be gained from the fact that a press with platten 21 inches by 25 gives a gross pressure of 30 tons; and a press of platten 36 in. by 48, a gross pressure of 400 tons.

The hydraulic press attempts to obtain this variation of pressure, to suit increasing load, with faster speed of travel at the commencement than at the end of the stroke, by the use of two or three press pumps, of which the larger ones are successively thrown out of action as the resistance increases. But this arrangement is not regular in its varying action, and at the best, an hydraulic press of any considerable power is a very slow and tedious traveller besides being expensive.

We understand that this press is being rapidly adopted by packers and oil manufacturers. Printers and bookbinders are also bringing it into use, and we may mention that we saw one recently in the warehouse of Messrs. Cassell, Peter & Galpin, where it is giving great satisfaction.—*Iron*.

IMPROVED BELTING.

(See page 72.)

In the annexed drawing we illustrate the angular or V belting, which is said to be not merely the best form of belting, but the best means of transmitting power. The V belting has attracted some attention at the Centennial Exhibition, where it was employed to drive a large centrifugal pump. As will be seen from the diagram, it is made of truncated wedging pyramids of leather, the several plies being cemented together, and riveted to a continuous belt of ordinary construction. Flat belts slip to a greater or less extent, according to the conditions under which they are working, and round belts, when working in V grooved pulleys, though having less tendency to slip than flat belts, create friction where it is not wanted, for their action is that of a continuous wedging and releasing into and from the groove. Round belts working on semi-circular grooved pulleys give better results, but it would seem that the V-shaped belt gives the best. The belt is really in two portions. There is the ordinary flat belt to transmit the power, and added to it are specially devised means for gripping the pulleys, the wedges or truncated pyramids presenting a large surface for producing friction in the best manner. The wedges or truncated pyramids are placed at equal distances along the inside face of the belt, which thus has the appearance presented in the side elevation, as if wedges had been cut out of a flat belt, and the sides pared down to a V-shape. The angular belt, which is made by a New York firm, is said to be not only flexible and strong, but to have a high gripping power, adapting it for purposes where steady running is required under varying loads; it is also very durable and cheap.

THE LATE SIR TITUS SALT, BART.

(See page 73.)

The death of this eminent manufacturer and local benefactor of the West Riding has been noticed with appropriate testimonies of respect for his great works of public usefulness. It is a suitable opportunity for us to give an illustration of the monument which was erected in honour of him, two or three years ago, in the flourishing commercial town of Bradford. Mr. Adamson-Acton is the sculptor by whom the statue was designed and executed, and it is generally approved as a faithful and characteristic likeness of Sir Titus Salt. The architectural canopy or shrine was erected by Messrs. Lockwood and Mawson. Our readers are probably aware that the magnificent industrial colony of "Saltaire"—a complete model town for a large working-class population attached to the alpaca and worsted or mixed factory—is situated near Bradford, on the banks of the Aire. Here the liberal proprietor erected above 800 comfortable dwelling-houses, a Congregational and Wesleyan Church, several schools, lecture-halls, clubs and institutes, baths and washhouses, hospitals, infirmaries, and almshouses, and laid out a park for the recreation of his workpeople. Sir Titus Salt likewise conferred upon the town of Bradford, which he once represented in Parliament, some direct benefits of considerable amount, by his donations to the Fever Hospital, Peel Park, and other institutions, as well as by his personal services in the borough Corporation. Besides the open-air monument shown in our illustration, there is a marble bust of Sir Titus Salt, upon a pillar and pedestal, in St. George's Hall at Bradford. It is the work of Mr. T. Milnes, and was presented to the town by the workpeople at Saltaire.—*Builder*.

THE DELHI CLOCK TOWER.

(See page 73.)

The municipality of Delhi has, of late years, effected great improvements in that city, where Queen Victoria was proclaimed Empress of India on New-Year's Day. The streets and roads are now, perhaps, the cleanest and best drained and repaired of any native city in India. Handsome English lamps, with cast-iron posts, have lately been introduced in all the streets. A fine Town-hall, with a ball room, museum, library, and splendid durbar hall measuring eighty feet in length by forty feet in width and height, has been erected, in a commanding site, between the Queen's-gardens and the Chandnee Chowk. Trees have been planted along the sides of the roads; large and handsome tanks have been built; and almost everything has been done that taste or intelligence could suggest for the proper conservancy of this fine old "City of the Great Moguls." A great improvement is the new clock tower, erected in the centre of the street called Chandnee Chowk, opposite the Townhall. This building stands 115 feet in height above the roadway, exclusive of the handsome