

FLAX AND ITS PREPARATION.

It has been asserted that flax is, in Great Britain, the most profitable crop that an agriculturist can grow, and yet, of late, whole districts which used to be under this crop are turned over to other uses. There has been, as the *Practical Magazine* informs us in a thoughtful and exhaustive article, a great difficulty in finding machinery suitable for the preparation of the fiber (which needs the most careful treatment), capable of being managed by field hands. "Every farmer," says our contemporary, "ought to have his own scutch mill. The object to be aimed at is the economy of fiber. The saving of labor, the combination of more than one process in the same machine, and every other economic or mechanical desideratum ought to be secondary to the capability of the machine in clean scutching; in giving the largest possible yield of flax ready for the hackle from a given quantity of "mannered" straw. The system of scutch mills as we find them in Ireland is the best that has been adopted as yet. Hand scutching is too tedious, and the flax so manipulated can never be properly cleaned—short of an amount of labor which would add too much to the cost of production. But the scutch mill working for a number of farmers only suits Ireland, or elsewhere where the farms are small. In England and Scotland, where the farms are large, every farmer ought to have his own mill, either worked at the farmstead by the engine which works the threshing and other machinery of the farm, or by water power, when it may be had on the farm. The scutch mills ought to be in sets of three stocks, so as to give the flax the chance of "a buffer," "a cleaner," and "a finisher," to every streek. The "buffer" may be an unskilled man if only careful not to allow the "blades" to break his hand as he holds it across the stand of the stock. A careless scutcher will waste his wages in a quarter of any day he is allowed to work. The "cleaner" ought to be not only careful, but an orderly man. If flax is treated like hay, the loss is incalculable. Assuming that the man at the "rollers" has not allowed an uneven "beet" to pass through his hands, and has not made some stalks to ride on others before he presented the charge to the rollers, and that the "streakers" have done their work carefully, and that the "buffer" is not a sloven, the cleaner will then be enabled to place the streek on the "finishing" board so orderly that not a fiber will be awry. The "finisher" must not only be a skilled laborer, but also an orderly minded man, possessing a good taste; and if he has those qualities he will show his pride in the orderly condition, the clearness from shove, and the general finish of every streek, which are necessary to good and economic scutching. But with bad machining, neither the "roller" nor the scutchers get fair play; and the owner of the flax pays for all in a serious curtailment of profits. The mill should go steadily whether by steam power or water power. The motive power should always be under such easy control that, according to the condition of the flax (hard or soft), the motion of the mill should be easily regulated."

We give herewith a self-explanatory view of a flax-breaking device which is now being introduced abroad for the purpose of enabling farmers to prepare this valuable but troublesome fiber for manufacturers' use. We believe that it will be of interest to the agriculturists in many portions of our country, who greatly need the introduction of a new industry. Possibly it may pay to grow flax in places where corn is burnt for fuel because it costs too much to get it delivered into the centers of population.

THE OREODOXA REGIA PALM.

The splendid and luxurious flora of Brazil produces nothing more graceful than the lofty palm known to botanists as the *oreodoxa regia*. Straight and slightly tapering for over sixty feet in height (when fully grown), the tree then separates into a frond of remarkable beauty, as complete in form as the capital of a Corinthian column. A grove of these trees (represented in our engraving) is to be seen in the public botanic garden at Rio de Janeiro, and it is difficult to imagine an object more beautiful to the eye of a lover of Nature. The trees are said to be between forty and fifty years of age. The trunk of each of them is about four feet in diameter at four feet from the ground, and it goes on tapering gradually to a length of more than fifty feet, when it becomes united with another smooth thinner trunk, from ten to twelve feet in height, formed of the bright green foot stalks of the leaves, which again measure some twenty feet or more.

In young vigorous trees the leaves are considerably longer. The great beauty of this palm is its elegance and cleanliness of aspect; no ragged leaf beats about in the wind, even at that great height; the over ripe yellow leaves unseath themselves of their own accord, and the trees look as clean as if they had been trimmed by hand. The color of the stem is a whitish gray, like that of light stone in dazzling sunshine; and although from top to bottom it is covered with lichens of all the colors of the rainbow, yet so small are they that you only perceive them by approaching the tree closely.

In the same grounds, says *The Garden*, to which we are indebted for the illustration, exists the parent of these palms, which was planted during the last year of the last

with the appearance of this avenue, which is unrivalled for its regularity, extent, and beauty. It forms a colonnade of natural columns, whose graceful bright green capitals seem to support an overarching dome of bright blue sky.

Property in Patents.

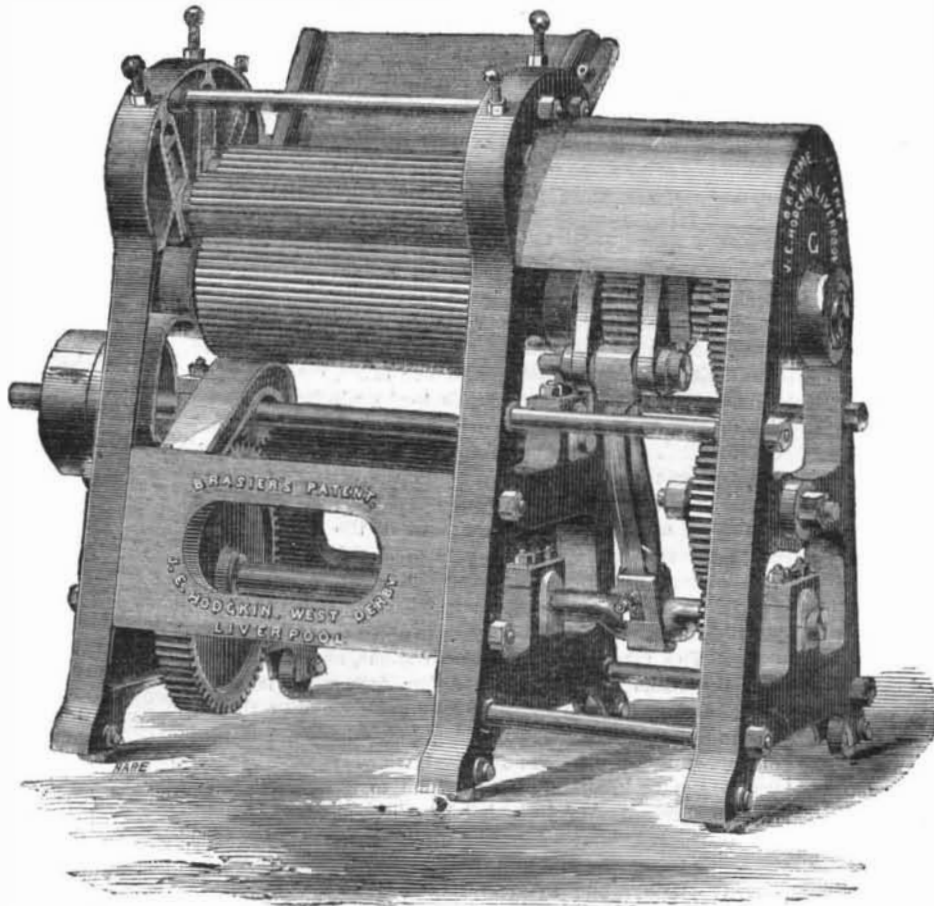
"The Nature of Property in Patents," was the title of an interesting society paper lately read by Mr. E. M. Quimby, of Orange, N. J., in which were set forth some of the difficulties attending part ownership of patents where there is no agreement regulating the use of the joint privilege, and the importance of preserving the title to the patent in its entirety demonstrated. Mr. Quimby thus formulated the legal question: "Patent property consists of an assignable privilege, having originally an exclusive character, which may or may not be preserved at the pleasure of the grantee. If the grantee assigns an undivided interest in his patent without the precaution of an agreement regulating the use of the privilege assigned, he by that act divests himself of the sole power of exclusion which he theretofore possessed, and the common property thenceforth is simply a common privilege, the free exercise of which by either part owner cannot be held to be an invasion or infringement of the rights of the other part owner."

Mr. Quimby suggested that the whole interest might be assigned to a trustee empowered and directed to administer the patent for the joint account of the several owners *pro rata*.

In discussing the moral effect and relative scope of patents for analogous inventions, it was remarked that the grant of a patent by no means establishes a commercial value for the invention, or even necessarily indicates that it may be used without invasion of the rights of others. To determine these points, it must be ascertained by further investigation whether the subject matter of the patent in itself infringes, or whether its use involves the concurrent use of devices which infringe upon principles claimed in prior existing patents, or described so as to be claimed in possible reissues of such patents.

Slag as a Building Material.

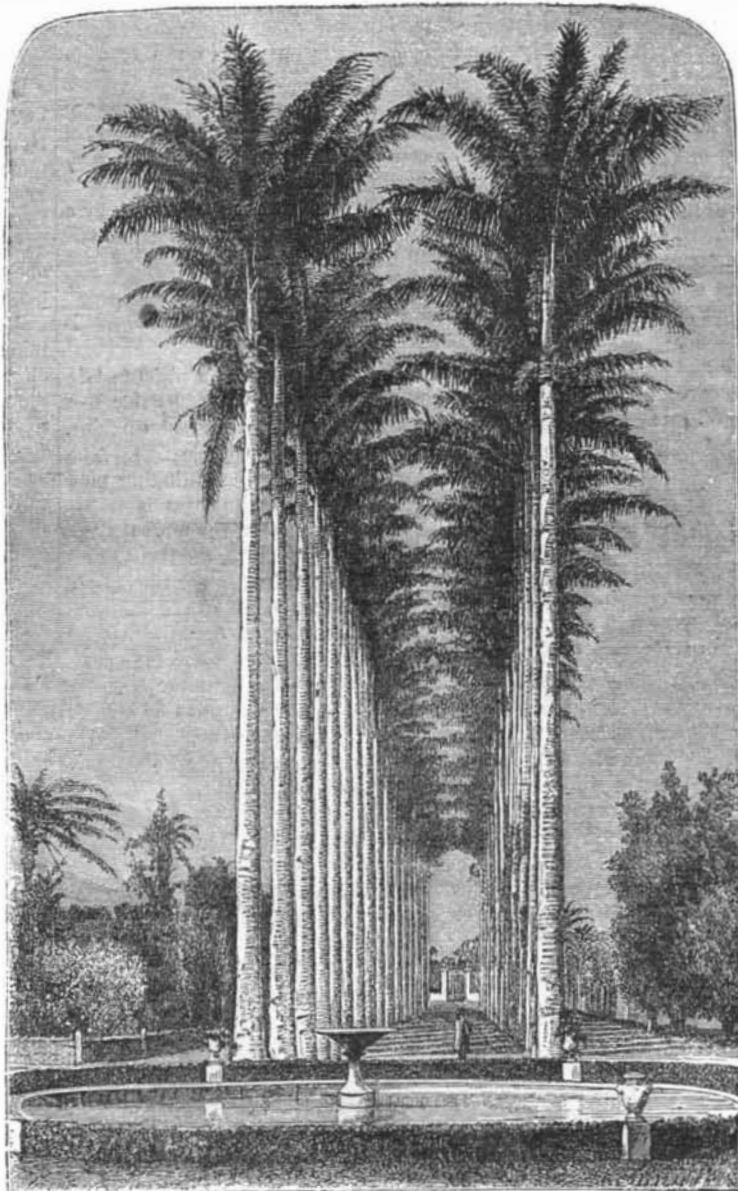
At a recent meeting of the Society of Engineers, London, a paper was read on the economic use of blast furnace slag, by Mr. Perry F. Nursey. The author commenced by noticing generally the history of the utilization of slag. In that condition it was first used for the beds in pig iron founderies, and afterwards in producing fine castings. It was also mixed with lime in certain proportions, and then pressed into bricks and made into concrete and cement. Slag sand was also used in making mortar with very good results; it was further utilized as ballast on railways, and had also been adopted in the manufacture of glass. In England, the author stated, it had also been similarly applied, and systems of machinery for its utilization had come into practical operation. The machinery of Mr. C. Wood, of Middlesborough, and of Messrs. Bodmer, of Hammersmith, was then described by the author by the aid of diagrams and models. Mr. Wood's machines, he explained, were of two kinds, one of a horizontal revolving table, and the other a vertical revolving drum. By the first machine the slag was cooled with a stream of water as it left the furnace, and, becoming disintegrated, was broken up and pushed off the table at a certain point by scrapers into trucks placed beneath. In that state the material was in a suitable condition for making concrete for building purposes. The second machine was for reducing the slag to a finer condition. It was run from the furnace into the drum, through which a stream of water flowed. The drum had screens placed within it, and as it revolved the slag became reduced to a fine sand, and was delivered in that condition into trucks. The sand was utilized in making bricks, cement, mortar, and for other similar purposes. Messrs. Bodmer's plan consisted in the use of a pair of rolls, through which the slag was run from the furnace on to a traveling band, which delivered it wherever required. The sheet of slag thus produced was readily broken up for use in concrete-making or ground into powder for bricks, cement, or mortar. For some purposes Messrs. Bodmer ran the slag into water, but for bricks and cement they produced it dry. They had also a special system of machinery for the manufacture of slag bricks, which was worked by hydraulic power, and which was described by Mr. Nursey. Samples of sand produced by both processes were exhibited, as were also bricks, concrete, and cement made from them. The satisfactory results which the author showed had followed the extensive use of blast furnace slag in the form of building materials leads to the hope that the enormous heaps of slag in the iron districts will become a source of profit and will provide good sound building materials at a low cost.



FLAX BREAKING MACHINE.

century, and is now above 120 feet in height. It is a noble tree, and, as it stands singly and at a considerable distance from other plants, its beauty and height can be seen to the best advantage.

Strangers from northern countries are invariably struck



THE OREODOXA REGIA PALM TREES.