

### MODERN FLAX SPINNING.\*

(Continued from last issue).

In 1884 a machine was bought out by M. Cardon, of Lille, who in a sectional machine tried to combine the breaking and scutching of the straw with the "roughing" and hackling of the fiber. His method of scutching was quite novel, as, instead of a beating action, he substituted a pricking motion, by which he strove to break up the boon. It was found, however, that this severe pricking injured the fiber, and his machines were subsequently abandoned. Another scutching machine was that brought out several years ago by the Fiber Machinery Co., Limited, of London. It differed considerably from any previous machine. In construction the machine was something like a double-power reel, in two sections. The "stricks" of flax were carried along over the horizontal revolving "swifts," being held between two traveling bands of steel passing round a pulley. The rails of the swifts were in the form of scutching edges. The first section, revolving in one direction, cleaned one side of the root end; the second section, revolving in the opposite direction, cleaned the other side. The flax was then released by the bands, turned by hand, and the top end subjected to another pair of beaters. This machine, although giving a good yield, met with little success, for the reason mentioned in our previous article, namely, that the fiber produced had not the mellowness, small "reed," and soft milled appearance which characterizes flax "finished" on the ordinary handles. The very latest thing in the way of flax-scutching machinery is the combined scutching and hackling machine of Vallet-Rogez, of Lille, France. It resembles, in principle, Cardon's machine, which we have already described; another system of breaking and scutching being substituted for the pricking motion of Cardon, which proved the weak point in his machine. The machine is provided with mechanism for preventing the operator from inserting holders into the carriage at improper times—a very important point, since if the holders be "shoved in" the flax is not properly scutching. The breaking mechanism is as follows. Immediately below the lowest position of the carriage and on either side of a vertical line dropped therefrom are two fixed horizontal bars, at a small distance apart. In the space between these fixed bars another bar is worked with a quick horizontal motion by means of a crank, etc. This movable bar has a slot extending its whole length, and of the same breadth as the distance between the pairs of fixed bars, which is just sufficient to admit the stick of flax. The distance apart of the fixed bars becomes less towards the "fine" end of the machine, as the strick becomes smaller, owing to the loss of boon. Below the breaking mechanism and along the entire length

of the breaking section are the rotary beaters, provided with blades with scalloped edges. These beaters rotate at the same speed, being so set as to work intersected. The first row of hackles in the hackling portion of the machine are formed to act as scrapers. These hackles are cut out of a thin steel plate, the points being formed into a sharp vertical edge to penetrate the flax. The bases widen out in a curve and join, and are sharpened to a horizontal edge, so that they may scrape three sides of the flax fibers and help to remove any "shove" left on after the beating process. This machine has not, as far as the writer is aware, been worked in this country. From the published description it would seem, however, that sufficient provision is not made for cleaning that portion of the strick close to the nip of the holder. The patentee claims that that yield of hackled flax is equal if not superior to that obtained from the mere scutching in the ordinary way. The principle of scutching flax remains practically what it was in the early part of the century, the only improvements being in the breaking machinery, and in the construction of the "handles." The stricks of flax when finished are put up in bundles of a certain weight, which depends upon the custom of the country and the district. In Ireland it is usually put up and sold in stones of 14 lbs. A good crop of flax should give at least five to six tons of green straw per acre, which will only weigh 33 to 40 cwt. when steeped and dried. The latter, when scutching, will yield from 20 to 50 stones of flax, according to the way it has been steeped and handled. Green flax has about 5 per cent. of bolls upon it. When watered it loses 65 to 70 per cent. The yield of fiber is about 10 to 20 per cent. on the steeped and dried straw, and only 3 to 5 per cent. on the green straw. The average stones per statute acre in the principal flax-growing countries for the last ten years are approximately as follows: Ireland, 27.5; Belgium, 31; Russia, 17; Holland, 29.5.

It will be seen that Russia has the lowest yield per acre of any flax-producing country. This is to be accounted for by the fact that in Russia the flax is sown thin, and also that the culture of the crop and the preparation of the fiber receive less care than they do even in Ireland. The reason that flax growing has of late years proved unprofitable in Ireland is in a great measure due to the fact that owing to want of care the fiber is more like Russian flax than true Irish. Now, owing to the cheap labor in Russia, a flax of poor quality can be imported into this country at less than 2s. per stone, while to the Irish farmer his flax must bring at least 5s. per stone to pay expenses. It is obvious, then, that to make a profit he must produce fiber of a quality far superior to Russian, and this can only be done by paying particular attention to the cultivation, steeping, and scutching. In Belgium, although labor is cheaper than in Ireland, flax steeped in the Lys