PLAX SPINNING FRAME.
CONSTRUCTED BY MESSRS. COMBE AND BARBOUR, ENGINEERS, BELFAST.
(For Description, see opposite Page.)

RONALD'S SPINNING MACHINE FOR FLAX, JUTE, &C.
CONSTRUCTED BY MR. THOMAS BARRACLOUGH, MANCHESTER.
(For Description, see opposite Page.)
TEXTILE INDUSTRY AT THE VIENNA EXHIBITION.—No. XXIII.

By Dr. H. Grether.

MACHINERY FOR THE TREATMENT OF FLAX, HEMP, JUTE, &C.—(Continued.)

The scutching machines exhibited at Vienna represented two systems only, namely, that with radially arranged scutchers, and another with blades or scrapers. The latter we should prefer, and we consider that this system, but with adjustable counter-pressure to accommodate an increased supply of material, will in future offer the correct solution of the problem of machine scutching. Attention has certainly been called to the fact that many improvements are required in the existing systems of breaking and scutching flax, and thus another step towards perfection may be expected.

For the hacking of flax, the Vienna exhibition contained one machine only, namely that exhibited by Messrs. Combe and Barbour, of Belfast. This machine, represented by the annexed Fig. 1, has strong and simple hackle teeth, which are so made that the pins enter the flax at right angles, and close to the holder. The machine has an adjustable lift, whereby it can be used for either short or long flax; the waste is separated from the tow, and the stripping motion is simple and correct in its action without vibration. The figure shows a section of the sheet and stripping apparatus. The flax is carried by holders a, which slide along the channel b. The stripper bars c of rolled iron are carried on bands d similarly to the hackles e, and pass round the top and bottom sheet rollers e and f with them, but at the back or outside the stripper bars c, which are brought out by carrier pulleys g, take off the tow, and any that is left on the bars a is caught by the tow catcher j, from which it is thrown into the tow box during the passage of the flax a from one set or rotation of hackles to the next.

For finer work, cut line, and in some cases for fine long line, Messrs. Combe and Barbour make brush machines, in which the arrangements as regards the hackles is similar, but instead of the stripper bars they use a rotary brush and doffer. The chief peculiarity of this machine consist in the mode of attaching the hackles to the sheets which carry
them, so as to make the pins strike at right angles into the flax; in the sheets having no teeth inside, and have been tried in practice with satisfactory results. This jute breaker card, the general arrangement of which is represented by the diagram, Fig. 2 (see previous page), is constructed in such a manner that the jute is transferred to the drum by means of a feeding roller with guard; this latter is adjustable, and its position with regard to the feeding roller can be altered. The ends of the "travellers" are well protected against the winding round of the flax. The delivery rollers are heavy and large. All the bearings can be easily adjusted, the covers are hinged, and the wheel gearing is placed outside the frame, so that it can be cleaned easily. The jute spreader contains a contrivance for the prevention of irregularities as a needle breaks off. The press rollers and back guides are provided on both sides with weights in order to exercise a uniform pressure upon the material, which advances at a constant speed. Merely mentioning here a machine exhibited by Messrs. Lawson and Sons for the preparatory treatment of the hemp, namely, a spreading machine, we pass on to a new hemp-spinning machine exhibited by the same firm. This spinning machine, the general arrangement of which is shown by the diagram, Fig. 3, is provided with a backing attachment, offering a large working surface. The spindles are put in rotation by the pulley, which is connected with a belt with the pulley, and makes 1200 revolutions per minute, a speed that could not be attained with wheel gear. The rollers and conduct the hemp from the chain to the spindles.

Messrs. Lawson and Sons also exhibited a jute copying machine, the sides of which is constructed in such a manner that it serves as a cover for the wheel gear, and that it provides a convenient support for the bearings, preventing the application of loose slides, &c. This arrangement is new, and it reduces the number of wheels and journals. The centers part of the frame may be removed without the use of a spanner, and the shaft for the bobbins may be taken out without interposing the spindles, or with the spindle carriage. The quadrant levers allow a vertical lifting to take place, without putting any considerable strain upon the bobbins or the spindles, or with the sliding carriage. The quadrant levers allow a vertical lifting to take place, without putting any considerable strain upon the bobbins or the spindles, or with the sliding carriage.

Before finishing our report of this class of machinery, we have to mention Ronald's patent spinning machine for spinning all kinds of hemp, jute, Maullia, &c., constructed by Mr. Thomas Barradough, of Manchester. This machine, which will easily be understood from our illustration on page 532, is a revolution of hand spinning, and is made for the purpose of substituting female work for male labourers, especially in places which are remote from all centres of civilisation and manufacture, and where nature produces a large quantity of fibres useful for spinning and weaving. The machine is very simple, it has very few wearing parts, and any woman of ordinary intelligence can superintend it and keep it in working order. The production of the machine varies according to the material to be spun, the thickness of the yarn, and the quantity of twist put into it.
FLAX SPINNING FRAME.

CONSTRUCTED BY MESSRS. COMBE AND BARBOUR, ENGINEERS, BELFAST.

(For Description, see Page 389.)