

## PORTABLE SCUTCHING MACHINE.

AMONGST the exhibits at the show of the Royal Agricultural Society now being held at Oxford, worthy of special notice, is the "Shamrock" portable hand breaker and scutcher, of which we give an engraving on the next page. This machine, which is constructed by Mr. J. E. Hodgkin, of West Derby, Liverpool, on his own patents and those of Mr. Brasier, consists essentially of a central fluted roller, (cut by machine), round which are arranged three other smaller fluted rollers driven by it, and kept in their places by set screws, C, between the points of which and the bearings of the rolls, are blocks or balls of vulcanised india-rubber. The handle, A, is carried by a frame which works freely round the axis of the main cylinder. In this frame are carried two pawls, suspended on opposite sides, and working into the teeth of a double ratchet wheel, keyed on the central rolling shaft, with two sets of teeth set in opposite directions. The pawls fall naturally into their places by the action of springs, and if not interfered with, would always bite in the ratchet wheel, and thus communicate to it, and of course to the central roller, an alternating motion in accordance with that of the handle, A, which is pulled backwards and forwards a convenient distance.

In order to obtain a movement greater in one direction than another, one of the pawls is at every stroke lifted out of the teeth of the ratchet by a stationary cam piece, fixed to the frame of the machine, along which the tail of the pawl is made to traverse by the downward stroke of the handle. Thus the main roll stands still during the time that the end of the shaft is passing over it, and the amount of backward revolution is diminished accordingly. It will be seen that when the flax straw is placed on the feed board, B, and a backward and forward motion is given to the handle, A, the straw is made to move forward a certain distance between the rollers, then backward a shorter distance, and is ultimately brought out on the delivery board. The stationary cam piece is three-sided, and by turning one or other face to the roller of the pawl three different amounts of differential action can be obtained. The operator has it also in his power to give a greater or less amount of rub to the flax straw, at will, in this way: when the handle is only partially depressed, the tail of the pawl does not come into contact with the cam piece at all, and thus the operator simply rubs backwards and forwards any straw which he may find to be badly retted. Then, by dropping his hand, he brings the other action into play, and the flax is rapidly discharged from the machine. The scutching portion of the machine is independent of the breaking, and will be readily understood.

On the main axis of the machine, which is purposely made large, runs freely the wheel, E, actuated by the handle, D, and working into a pinion on the scutching axis, on which are mounted the scutching blades, FF. By turning the handle, D, rapid rotation is given to these blades, and the previously broken flax is easily scutched in the slot of the stock, H, the distance of which from the blades is regulated at pleasure by screws at the foot. The flax straw is so thoroughly broken, and the skin is so loosened in its passage through the breaker, that the operation of scutching is a very easy one. Mr. Hodgkin has received some highly satisfactory testimonials as to the performance of the machine we have described, and it is one in every way deserving of attention.

PORTABLE HAND-BREAKING AND SCUTCHING MACHINE.  
CONSTRUCTED BY MR. J. E. HODGKIN, WEST DERBY, LIVERPOOL.  
(For Description, see Page 49.)

