

REPERTORY
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NUMBER XCII.

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XII. *Specification of the Patent granted to Mr. JOHN KENDREW, of Darlington, in the County of Durham, Optic Glass-grinder, and Mr. THOMAS PORTHOUSE, of the same Place, Clock-maker; for a new Mill or Machine, upon new Principles, for spinning Yarn from Hemp, Tow, Flax, or Wool.*

Dated June 19, 1787.—Term expired.

WITH A PLATE.

TO all to whom these presents shall come, &c. NOW KNOW YE, that in compliance with the said proviso, they the said John Kendrew and Thomas Porthouse do hereby describe and ascertain the nature of the said invention, and in what manner the same is to be performed, as follows; that is to say: The machine may be worked or used by a water mill, horse mill, or any other kind of mill, and is made and used as hereafter described in the two drawings or plans added hereto, and figured 1 and 2, and severally

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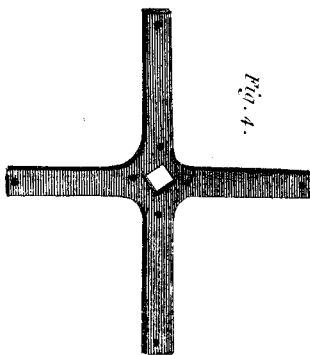
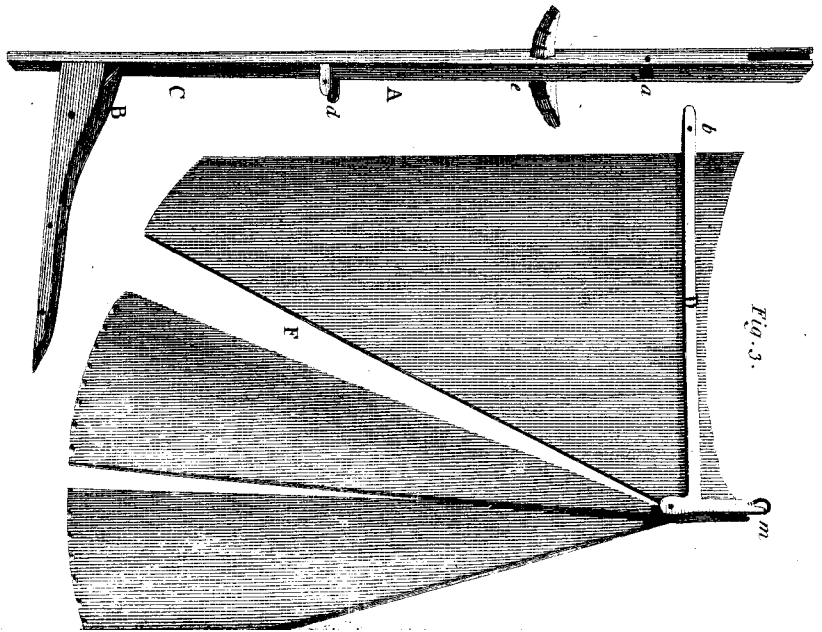
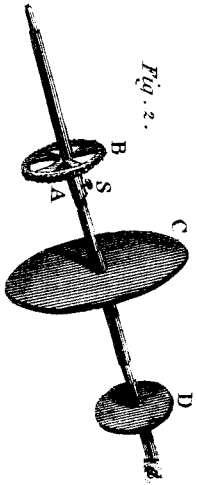
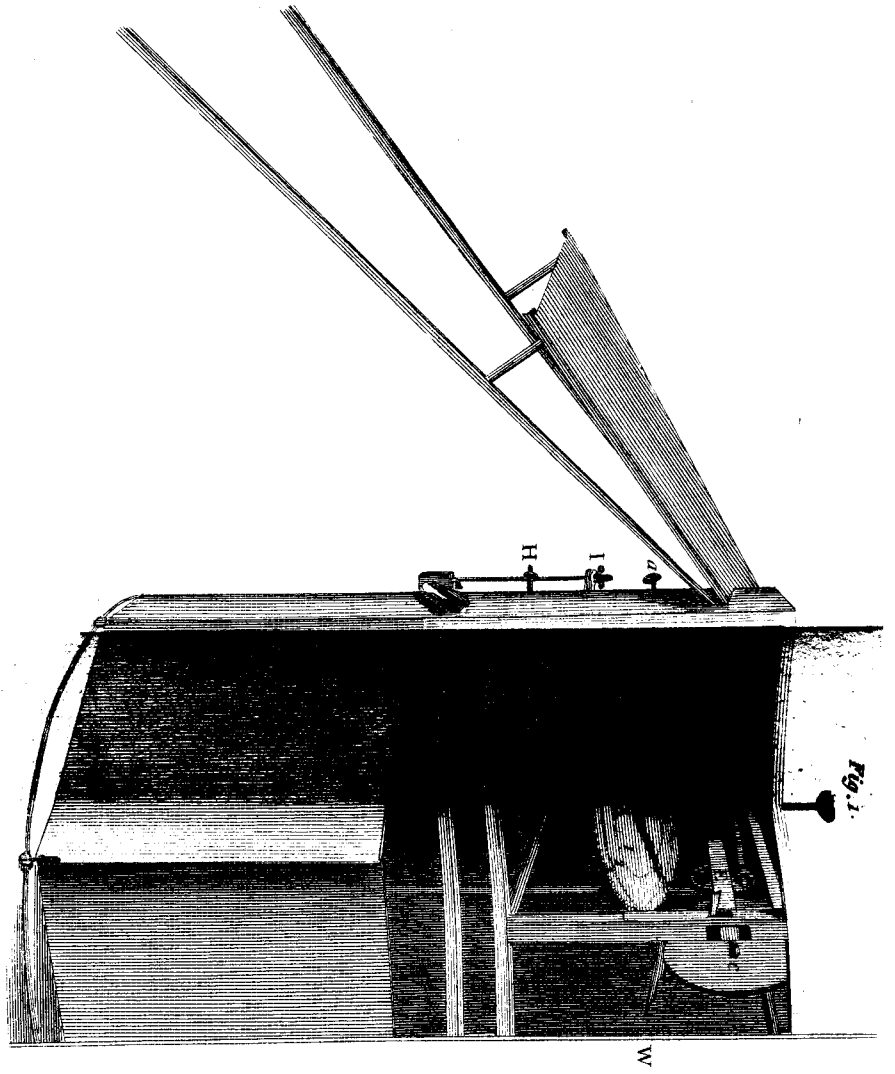
marked. There is a cylinder, as marked **A** in the drawing Fig. 1, (see Plate III.) three feet diameter and ten inches broad, made of dry wood or metal, turned true, and covered on its circumference with a smooth leather, upon which are placed the rollers marked **D**, covered with leather, and supported in their situations by the slits in the covered piece of wood marked **K**, in which the iron axes of the rollers turn, but suffers them to press on the wheel marked **A**. There must be another piece similar to the above to support the other end of the rollers. These rollers are of different weight. The upper roller marked **D 1** is two stone, the rest decreasing to the last, which is only two pounds weight and one half. There is an iron fluted roller, marked **F**, furnished with a toothed wheel at each end, and a wood one, marked **G**, covered with cloth, and over it a smooth leather. There is an affixing roller, marked **H**, of fluted iron. These rollers are supported by their axes, turning in the slit, marked **2**, of the piece of wood marked **M**, (Fig. 3,) which is here separated from the end of the frame marked **8**, to shew the rollers and wheelwork. The rollers marked **G** and **F** are squeezed together by means of the lever marked **p**, and its weight marked **w**, (Fig. 3). The roller marked **H** is pressed to the mark **G** by its axis acting upon the inclined plane marked **x**, (Fig. 3). There is a rubbing roller covered with woollen cloth, and on its axis is a small wheel, marked **I**, driven by the wheel marked **S**. This roller rests upon the roller marked **G**, and by its motion prevents any dirt or fibres from adhering to it. There is a cloth, marked **N**, revolving over two rollers marked **O, O**, which has motion given to it from

from the wheel marked C, by means of another wheel marked P. This cloth moves at the same pace as the surface of the wheel marked A. There is a supporter, marked Y, of the axis of the wheels marked O P, but is removed, in order to shew them; it is fixed by its tenons in the mortices marked Z, Z. The roller marked B is kept in action by its endeavour to slip down the inclined plane at the top of the piece marked Y, thereby pressing against the revolving cylinder; and another piece, similar to this, must be understood to support the other end of the roller's axis. By the side of this revolving cloth is a table placed, of the same length and breadth as the cloth is, to which belong two smooth cloths or leathers, of the same size as the table. The machine being thus prepared, the attendant or workman must take a quantity of hemp, tow, flax, or wool, more or less, according to the fineness of the thread to be made, and lay or spread it evenly upon one of the smooth cloths on the table, then place it on the revolving cloth marked N, motion being communicated to the roller marked F, by wheel-work, as usual, from a water, horse, or other kind of mill, which wheel-work is communicated to the wheel marked Q, on whose axis is a nut, which turns the wheel marked C; and thereby the cylinder marked A moves, and with it all the rollers, by which motion the hemp, tow, flax, or wool, is drawn forward. The cloth turns down, but the hemp, tow, flax, or wool, go upon the cylinder marked A, under the roller marked B, and so forward under all the rollers marked D, then falls in between the rollers marked G F, turns under the roller marked G, and over the roller marked H, which, as it gives the

rollers hold of the hemp, tow, flax, or wool, in two places, enables them to drag forward the long fibres thereof, though many of them are to draw from under the marks 4 or 5 of the pressing rollers, marked D; it then falls into a cannister, marked R, and as by the wheel-work the rollers marked F, G, H, move three times faster than the cloth and cylinder, the fliver must be three times longer than when presented. By the time this is drawing, the other cloth is filled with hemp, tow, flax, or wool, as before, and laid upon the revolving roller, laying the hemp, tow, flax, or wool, over the end of the other, which goes forward as before, and thus a continued fliver is produced as long as the machine continues its motion. But in order that this fliver may come out of the cannister marked R without entanglement, it must pass through an instrument marked 5, (Fig. 3,) placed over the rollers marked F, G, its open side marked T, to the cylinder at mark 4, supported by its ends marked V, V, in the slits marked W, of the before-described pieces marked K. The aperture marked X is so small as to press the fibres close to each other in their passage through it previous to their passing the rollers, by which means they remain pressed side by side in the fliver, and will not entangle. These thick flivers are drawn smaller by a similar process, and in the same manner as used for cotton, but the machines for drawing are all of the same structure as the above, except that they have no revolving cloth. The fliver is applied to the cylinder under the roller marked B, which draws it forward under all the rollers, as before described, drawing it out, or lengthening it, every fresh machine through which it presses, till
it

it be small enough for the spinning machine. It must be remarked, that the cylinders are made less in diameter, according to the different smallness of the sliver intended to be drawn upon them at the first; whilst the sliver is at its greatest thickness, the cylinder is required to be three feet diameter, as above described, the next rather less, and so on to the last, which is only two feet. The aperture of the bottom of the contractor belonging to each machine is also made one-third part smaller than another in succession, from the greatest to the smallest cylinder; as also the drawing rollers marked F, G, H, are farthest from the pressing roller marked D in the longest cylinder, and nearest at the smallest cylinder. At the largest cylinder the distance is about nine inches, and the smallest about four inches; but their distance cannot in all cases be fixed, as it depends on the different length of the fibres of the hemp, tow, flax, or wool; long ones requiring the distances mentioned, and short ones requiring the distances much shorter than is here specified.

The following several letters or marks are in the machine figured 2. The spinning machine, as to its drawing principle, is the same as the drawing machine. The slivers are presented to it in canisters marked A, and drawn over a cylinder marked B, covered with rollers marked D. The fibres which are to form the thread are drawn from the cylinder by the rollers marked C, the under roller of which is made of fluted iron, the other of wood, covered with leather; they move six or eight times faster than the cylinder marked B; are enabled to draw the hemp, tow, flax, or wool, forward from under the pressing rollers marked D,
by



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