XXXVII. Deſcription of a patent Machine for combing Wool; communicated by the Patentee, the Rev. EDMUND CARTWRIGHT, of Doncaſter, Yorkſhire.

WITH A PLATE.

THIS machine is, I believe, the firſt of the kind; at leaſt, all former attempts (if there have been any) muſt have proved abortive; as, previous to my invention, no wool was ever known to have been combed any other way than by the ſlow and expenſive proceſs of hand-labour.

The magnitude of this invention, in reſpect of its object, and its importance to the woollen manufactures, may, in ſome degree, be eſtimated by the quantity of combing wool annually grown in this iſland, which, according to the moſt approved calculations, cannot be leſs than 3 or 400,000 packs; the average expence of combing which by hand may reaſonably be laid at £800,000, or a million. That this calculation is not far from the truth, we need only recollect that the body of wool-

wool-combers is ſuppoſed to be nearly 50,000, amongſt whom the alarm which the introduction of this machine has occaſioned is well known. Upwards of forty petitions, from various parts of the kingdom, were preſented to parliament, during the courſe of the preſent ſeſſions, for its ſuppreſſion; and, for this purpoſe, a bill was brought into the Houſe of Commons by the friends of the petitioners. It was, however, rejected by a great majority; indeed, had the principle of the bill been admitted, there had been an end to all manufacturing improvements. But, ſetting even this conſideration aſide, on other principles of policy it would have been inadmiſſible; even on the principle of humanity to the petitioners, the only ground on which it could be defended, there is reaſon to believe it would not have been neceſſary. The introduction of new inventions or improvements, whatever may be their value, being in general ſo gradual as to affect thoſe, whoſe occupations they interfere with, almoſt imperceptibly.

I obtained my firſt patent, for this important invention, on the 27th of April, 1790. In conſequence

quence of ſome additional improvements, I obtained a ſecond patent on the 11th of December, in the ſame year. But it was not till nearly two years afterwards, that my machine was brought to its preſent ſtate of ſimplicity and perfection, when I took out a third patent, dated May 15, 1792.

The wool, if for particular nice work, goes through three operations, otherwiſe two are ſufficient: the firſt operation opens the wool, and makes it connect together into a rough ſliver, but does not clear it. The clearing is performed by the ſecond, and, if neceſſary, a third operation. A ſet of machinery, conſiſting of three machines, will require the attendance of an overlooker and ten children, and will comb a pack, or 240 lb. in twelve hours. As neither fire nor oil is neceſſary for machine-combing, the ſaving of thoſe articles, even the fire alone, will, in general, pay the wages of the overlooker and children; ſo that the actual ſaving to the manufacturer is the *whole* of what the combing coſts, by the old imperfect mode of hand-combing. Machine-combed wool is better, eſpecially for machine-ſpinning, by at leaſt 12 *per cent.*

cent. being all equally mixed, and the ſlivers uniform, and of any required length. On the firſt introduction of this machinery, it was found, when not carefully attended, to produce a greater proportion of noil or pinion than good hand-combing; but, in its preſent improved ſtate, it makes much leſs than any hand-combing whatever.

The advantages of machine-combing ariſe not merely from the ſaving of expence; yarn ſpun from it has a decided ſuperiority, eſpecially for curious purpoſes, ſuch as ſuperfine hoſiery, &c. At Meſſrs. Daviſon and Hawkeſly's mill, in the neighbourhood of Nottingham, where this machinery is made uſe of, yarn is ſpun of a quality which it was thought no mill-ſpinning could ever have arrived at. In juſtice, however, to the ſpirit and ingenuity of thoſe gentlemen, it muſt be added, that their ſpinning machinery is ſuppoſed to be upon a very ſuperior conſtruction. Beſides the above mill, my invention is already introduced into many others, and, in all probability, as trade revives on the reſtoration of peace, will be univerſally adopted.

What

What follows is the ſpecification of this invention, in its improved ſtate, taken from the different patents; rejecting ſuch particulars as, by the ſubſtitution of improvements ſince the date of the firſt patent, have been ſuperſeded and laid aſide.

Fig. I. (Plate XIV.) The crank laſher.

A. A tube through which the material, being formed into a ſliver, and ſlightly twiſted, is drawn forward by the delivering rollers. B. A wheel faſt upon the croſs-bar of the crank. C. A wheel, on the oppoſite end of whoſe axis is a pinion working in a wheel upon the axis of one of the delivering rollers.

Note. When two or more ſlivers are required, the cans or baſkets, in which they are contained, are placed upon a table under the laſher, (as repreſented at D,) which, by having a ſlow motion, twiſts them together as they go up.

Fig. II. The circular clearing comb, for giving work in the head, carried in a frame by two cranks.

Fig.

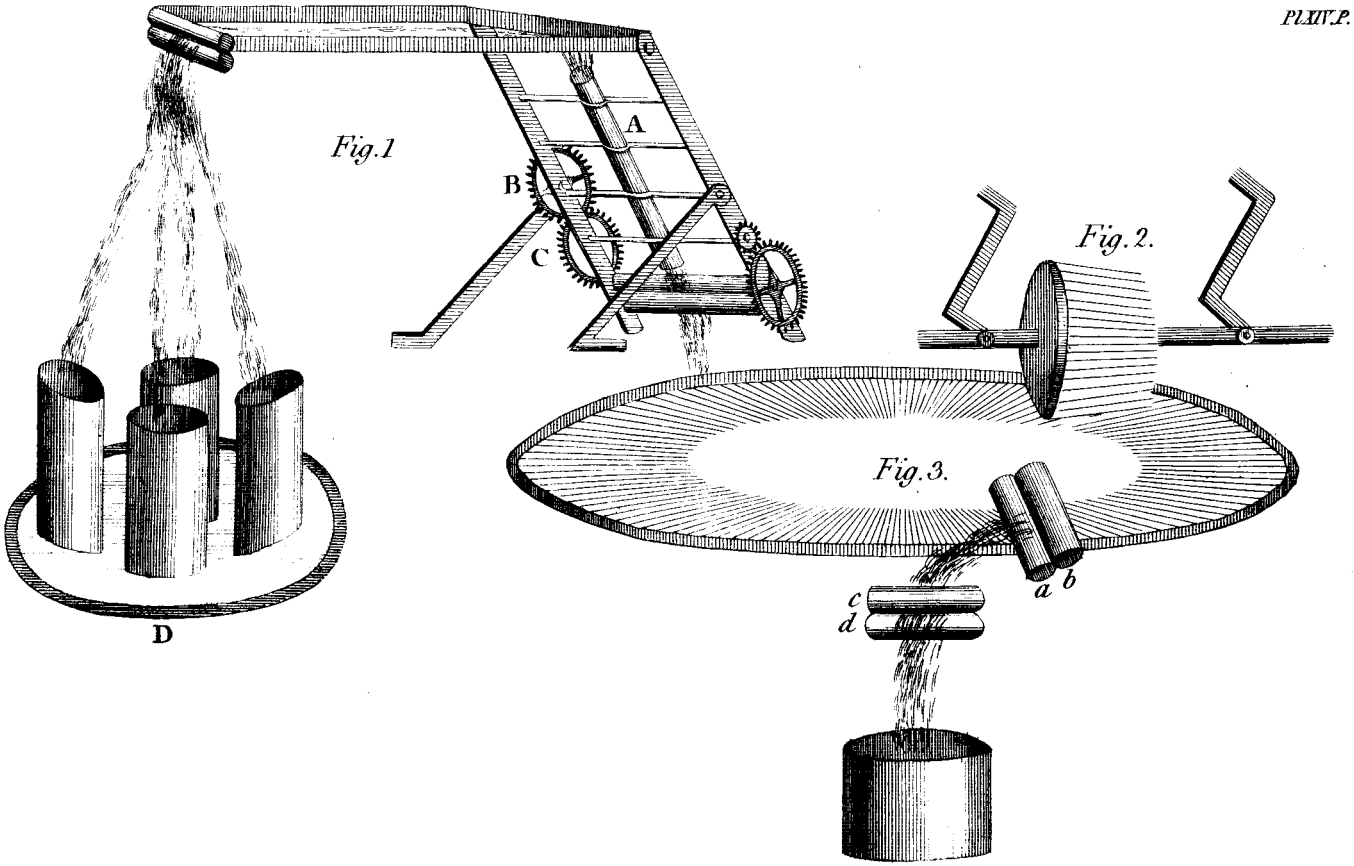
Fig.1
A
B
C
D
Fig.2.
Fig.3.
a
b
c
d

Fig. III. The comb-table, having the teeth pointing towards the centre, moved by cogs upon the rim, and carried round upon trucks, like the head of a windmill.

a. b. The drawing rollers. *c. d.* Callender, or conducting rollers.

Note. Underneath the table is another pair of rollers, for drawing out the backings.

It is to be obſerved, that the machine which firſt operates upon the wool differs in ſome points from the preceding, but not ſo materially as to require a particular deſcription of it, and, as this deſcription would require an engraving to accompany it, it is omitted.

In the above ſpecification we have omitted the frame in which the machine ſtands, the wheels, ſhafts, &c. Had theſe been introduced, the drawing would have been crowded and confuſed; beſides, as matters of information, they would have been unneceſſary, every mechanic, when he knows the principles of a machine, being competent to apply the movements to it.