

LVIII. Description of Mr. David Charles's machine for laying land level

Lieutenant-Colonel Hardy

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both food and drink : the next morning I had her turned for a few hours to grass, which she began to eat ; and from the inclination of her head and neck whilst eating, a most considerable discharge of suppurated matter came from her nostrils. She, however, daily recovered : the suppuration from her nostrils soon disappeared ; but the discharge from the wound in the neck continued in a considerable degree, by reason of the seton I had put into it, and which I further encouraged by the application of warm stupings twice a day. The animal, in the course of one week from the time of the operation, recovered perfectly, and is now as well as ever she was. I am, dear sir,

Your most obedient servant,

JOHN POLLOCK.

Rev. Dr. Lyster, &c. &c.

LVIII. *Description of Mr. DAVID CHARLES'S Machine for laying Land level. By Lieutenant-Colonel HARDY*.*

SIR,

EVERY new invention that lessens the expense of manual labour must become an object to your society ; I therefore beg leave to inclose the plan of an instrument for levelling ground, used by me this last season. Its application is simple, and its success so evident, that two neighbouring farmers borrowed it, and used it in the same manner.

Should the society consider it worth adopting, and that the sketch accompanying this letter is not sufficiently clear, I shall with great pleasure send a model to their repository.

I have the honour to be

Your most obedient servant,

JOSEPH HARDY.

Westmead Langhorne, Carmar-
thenshire, Jan. 5, 1803.

Mr. Charles Taylor.

This simple machine, which is the invention of my steward, and of which I have seen nothing similar, appears to me necessary, even in the most fertile parts of England, where the new system of drill husbandry has been introduced, or even where there is any attention to

* From *Transactions of the Society of Arts, &c.* vol. xxi. The silver medal of the society was voted to Mr. Charles for this invention ; and the thanks of the society were given to lieutenant-colonel Hardy for his communication, and for a model of the machine.

the waste of time, or to the ease of cattle in the act of ploughing, in order to get rid of crooked or unequal ridges without either a summer fallow by cross ploughing, or else by frequent repetitions of ploughing in the winter and spring, which the humidity of our climate will not allow in every kind of soil.

I reduced fourteen acres of land last spring to a perfect level, where the crowns of the ridges were above two feet higher than the furrows, and where they were crooked and of unequal breadths. Six acres of this is now under turnips, a crop that gives sufficient time to ameliorate the under strata of soil that had perhaps never before been exposed to the influence of the sun and air; and by the adoption of the Northumberland mode of sowing that root on dunged drills, it is almost immaterial where the upper stratum is, provided the seed vegetates, as it soon strikes into the manure, and rapidly flourishes.

My chief success, however, has been upon a field of eight acres, which lay in the unprofitable state already described. This land, which is a deep clay, and which had produced a crop of wheat from an old lay sod the former year without any manure, was winter ploughed, and lay in that state until the leveller was introduced the first dry weather in April. It was preceded by two horse ploughs, taking perhaps a square of an acre at once: these loosened the soil the depth of a common furrow, and twice the breadth across the ridges. The leveller followed, drawn by two oxen and two horses, with a man at each handle, to press it down where the height is to be removed, and to lift up the body by the handles where it is to be discharged. Thus four men, one driver, and eight head of cattle, will more effectually level from half an acre to three roods in one day, according as the earth is light or heavy, than sixty or eighty men would accomplish with barrows and shovels, &c., even with the assistance of a plough. In sandy ground, where the depth of one furrow will bring all to a level, as much will of course be done in one day as two ploughs can cover; but my ground required to be gone over several times. After this field was levelled, the backs of the ridges, as they are termed, which were stripped of their vegetable mould, were ploughed up, the furrows not requiring it. They were also harrowed, and the field copiously manured with lime compost; harrowed in, and broke into nine-foot ridges, perfectly straight, in order to introduce Duckit's drill. It was sown under furrow, broad-cast, the last of it not until the 13th of May, and was cut down a reasonable crop
the

the 4th of September. I am now thrashing it, and a sample shall be sent, as well as a return of the eight acres, if necessary.

The field now lies in proper form, well manured, with the advantage of a fair crop from heavy tenacious ground, without losing a season, and in a year by no means favourable.

I am well aware there are many shallow soils where it may be hazardous to remove the enriched surface, and trust perhaps one-half of your land for a crop that had never before been exposed to the atmosphere; but where the soil is sufficiently deep, or you have good under strata, and there is manure at hand to correct what is sour from want of exposure and tillage, it is evident from this experiment that no risk is run.

To avoid the expense of a fallow, and to lay out ground in straight and even ridges, even where drill husbandry is not practised, should be objects to every rational farmer. But where the new system is intended to be adopted, it becomes indispensably necessary. In laying down lawns, parks, &c., where furrows are an eyesore, or places inaccessible to wheel carriages from their declivity, and from which earth is to be removed, it will be found equally useful.

Should the society consider the inventor, David Charles, worthy of any remuneration, honorary or otherwise, it will be gratefully acknowledged by,

Your obedient servant,

JOSEPH HARDY.

Westmead,
Jan. 1, 1803.

Mr. Charles Taylor.

Description of the Machine.

Fig. 1. (Plate IX.) A, part of the pole to which the oxen or horses which draw the machine are fastened, and which is attached to the machine by a pin at B.

CC, The two wheels, shod with iron, which run upon the axle D.

EE, The upper frame-work of the machine, extending from the axle to the extremity of the handles FF, and secured firmly by the cross pieces.

GG, The curved iron sliders of the machine, which may be raised or depressed a little by means of the pins HH, which pass through holes in the wood-work, and also in the iron sliders; these sliders form one piece with the back iron scraper I, in the manner more fully explained in fig. 2.

K, The wooden back of the machine, which should be

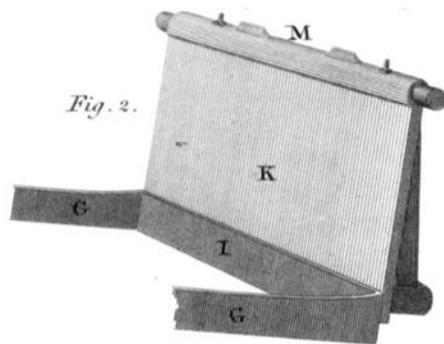


Fig. 2.

*M^r. David Charles's Machine
for laying Land level.*

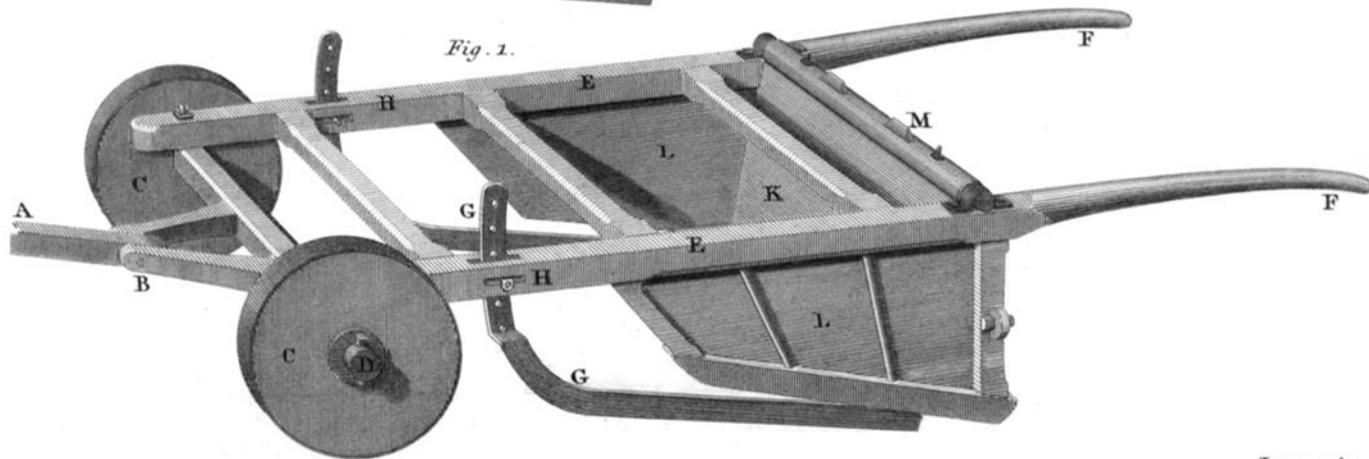


Fig. 1.

Lowry sculp.

made strong, to resist the weight of the earth when collected therein. The iron scraper should be firmly secured to this by screws and iron-work.

L L, The wooden sides of the machine firmly connected with the back and frame-work, in order to assist in collecting the earth to be removed.

M, A strong cross piece into which the ribs which support the back are well mortised.

Fig. 2. K, The interior part of the back of the machine.

I, The iron scraper, sharp at the bottom, and firmly screwed to the back of the machine.

GG, Parts of the side irons or sliders, showing the mode in which they are united with the scraper I.

M, The cross piece above described.

LIX. *On the Utility of Public Dispensaries in general; accompanied with a Report of the Cases in the Finsbury and City Dispensaries for the last three Months of the Year 1805. Communicated by JOHN TAUNTON, Esq. Surgeon to the City and Finsbury Dispensaries, and Lecturer on Anatomy, Surgery, &c.*

To Mr. Tilloch.

SIR,
THERE is surely no institution more beneficial or important than that which has for its object the alleviation or cure of disease. Such institutions are the strong-holds of the diseased poor. It is there they seek relief from all their maladies. It is in the arrangements of dispensaries that their circumstances are peculiarly considered.

To these institutions the poor of every denomination have a ready access, and their benefits are extended to every species and degree of disease.

Are their ailments slight or trivial? In the dispensary they find advice and medicine, while their families are not deprived of the earnings of their industry. Are they laid on beds of sickness, or confined by local disease or accidental injury? There are they visited: the dispensary extends its benefits to their habitations. What plan more philanthropic, or more wisely ordered! It is adapted to the circumstances of every malady: it enters into the bosom of every family: it restores the diseased to health, while they enjoy the kind and affectionate offices of the healthful: it extends the benign influence of the healing art to every needy and diseased object.

But