

it may supply food to the next crop, is one of the necessities of cultivation, in this country at least, and we apprehend, cannot be dispensed with in England. It is evident from a glance at the *modus operandi* of this machine that a large portion, probably three-fourths, of the vegetable growth of the soil, including roots of plants, will be deposited at or near the surface; and so, its value as plant-food will be, in a great measure, lost. We do not see how this result can be prevented. If you throw up a feather and a guinea, the latter will most assuredly reach the ground first. If stubble, grass, &c., are torn up at the same time with sand and clay, the former being lighter will by the same law, descend less quickly than the heavier body, and will thus be found at the surface. Possibly this tendency might be partially remedied by covering the cylinder so that the earth in falling would carry down the lighter bodies with it. But as the machine is represented in the engraving, the objection we have mentioned must prevent it from superseding the plough. It will merely do, in a more perfect manner no doubt, what is now accomplished by the "Cultivator" in common use. All the difficulties we have hinted at, as standing in the way of a steam locomotive "off the track," will obstruct this machine. Its slow forward motion is a point in its favour, because the power of the engine will thus be used to great mechanical advantage. But we fear, nevertheless, that it will prove an expensive mode of cultivating the soil.

A word as to the origin of this invention. Mr. Romaine is probably the first to attempt the practical application of the revolving hook or "claw" to the soil. But the idea is not a new one. Previous to the year when, as Mr. R. says, the idea occurred to him, a clever little book appeared in England under the title of "Talpa," or "Chronicles of a Clay Farm." In the concluding chapter the writer thus suggests the Talpa, or *claw* cultivator:—

"Again and again be it repeated, that it is not *ploughing*, neither is it *digging*, that we want. These are only *means*. What we want is the *end*: we care not for the process. Give me a SEED-BED: show me the soil *comminuted*, *aerated*, and *inverted*, six or eight inches deep, and I will not ask you *how it came so*. What does that matter? If you wanted your coffee ground for breakfast, to a certain fineness of texture, would you be very particular to ask whether the mill that crushed the fragrant berry had worked horizontal, vertical, alternate, elbow-crank, or by *circular* motion? If the farmer or gardener could only have his seed-bed made ready for him as fine as a new mole-heap, or to any other coarser texture, according as he wants it, do you think he would care whether the soil had been first cut into longitudinal strips plough fashion, or into spades cubes, spade-fashion, before it was finally granulated for his use? Surely the one is as indifferent as the other; and singularly enough, both offer problems far more difficult to the steam-engine (if anything can be called so,) than the performance at once of the *ultimate* and entire process without these preliminary forms at all.

Until steam power was discovered, this possibility did not exist. Wind and water being out of the question, there remained nothing for it—no *other* power that could be taken into the field—but men or horses. Ploughing or digging, then, were the indispensable preliminaries; there was no getting on without them; there were but preliminaries it is true, the former leaving everything, the latter a great deal (according as the work was done) to be accomplished afterwards to complete the cultivation. But it is not so now. Since the birth of the steam-engine—no such very long time ago, the whole elements of the question are altered. There exists *now* a portable power—not limited to horizontal action like the horse, nor to vertical action like a man using the spade or the hoe—which, if merely told *what to do*, will go and do it, merely dropping a hint into your ear that *circular* motion is its favourite.