

I lately saw an account, in an American paper, of a machine, called "Willis's Stump Extractor," which, it was stated, would clear an acre a-day; and at an expense of only \$10! As you seem to know a good deal of what is going on in the way of new inventions in agriculture, perhaps you can tell me something about this "puller."

Yours very truly,

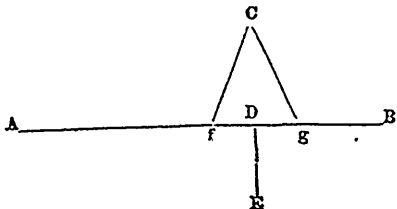
J. M.

Pickering, Sept. 10, 1855.

We cannot inform our correspondent where Stump Machines are made; nor the exact cost; nor can we say absolutely which kind will be found most efficient.

As to Willis's Stump Extractor, judging from the description of its performance by Lieut. Gov. Brown of Massachusetts, Editor of the *New England Farmer*—(the shrewd men of that State make Governors of *their* Editors)—we should say it is a very efficient machine. But we doubt that it will "clear" an acre of Pine stumps in a day; or at an expense of \$10. Gov. Brown, who witnessed its operation, does not speak of the amount of work it is capable of, further than to tell us that it upset a large stump in "ten minutes" *after* the chains were hitched.

From the description we infer that Willis's machine is the same in principle, as one we have seen used in Canada, and with much success. It is probably the most *powerful* machine that has yet been applied successfully to stump-pulling. It consists of a strong lever, from 25 to 35 feet long, with a very strong chain attached to it near the large end, which is made fast to an "anchor" stump. On the other side of the lever, and for a distance of two or three feet on each side of the point at which the chain is fastened, strong iron loops, or bolts with eyes, pass through the lever, at intervals of five or six inches. These are to receive the hook of another strong chain that reaches to the stump to be extracted. The small end of the lever is fitted to a wheel—generally that of a waggon. The lever operates between the two stumps to which the chains are attached. The principle may readily be understood from the following diagram:—



Suppose A, B, is the lever; C, the stump to be pulled; and E, the anchor stump; let the small end of the lever, A, be drawn back towards E; and the chain represented by the line C, g, hitched as short as possible. Then, reverse the power, and draw the lever forward as far as it will go towards C;—this will evidently tighten the chains, and shorten the distance between C and E. While the lever is in this position, the chain represented by C, f, is hooked into one of the eyes *between* the fulcrum D, and the power A, i.e., at f. The team is then turned back, and the lever brought to its first position. C, g, made slack by this process, is again hooked tight, and the operation continued until the stump is dragged from its bed. A contrivance, called "shears," is sometimes used in conjunction with the lever; and adds greatly to its power. It is calculated, that with a lever only 18 feet long, or 14 feet from A to D; and the chain attached to a purchase loop, six inches from the fulcrum, and a team, drawing two tons, will give a force of 56 tons at the stump. With the shears 12 feet high; and placed two feet from the stump a force can be exerted, equal to 336 tons! A longer lever produces, of course, still greater results.

The chains require to be of immense strength; and even then there is considerable danger in working this machine. We know of one that was made at a cost of £30. Iron and blacksmith work are the chief items.

But we have constructed and used a Stump-puller, this Fall, that we prefer, even to the above. It consists of a strong lever, 25 feet long. We chose a young second-growth maple, about 10 inches at the butt. It is not so elastic, or "springy," as oak or elm, and, on that account, preferable. A strong band of iron is fitted to the large end, and to this is attached a piece of $\frac{3}{4}$ -inch cable, about 4½ feet long, with a strong hook at the end. The team (we use horses) is hitched by a strong clevis to the small end of the lever. The stump must be prepared by cutting off the large roots and by digging, more or less, according to circumstances. When thus prepared, the chain is made fast to a projecting fang, and the team placed so as to bring the lever against the stump. You then "go a-head," if you can, driving round the stump, but taking it with you. The *twisting* power of the lever is immense; and aided by one or two men with another lever under the stump; but on the same side, prying up as the horses pull forward, it must be a very