

# Scientific American.

A JOURNAL OF PRACTICAL INFORMATION IN ART, SCIENCE, MECHANICS, AGRICULTURE, CHEMISTRY, AND MANUFACTURES.

VOL. V.—NO. 4.

NEW YORK, JULY 27, 1861.

NEW SERIES.

## Improved Stump-puller.

The great labor of sweeping the forest from the broad surface of this country, which has been going on for 250 years, is by no means completed; but every year new fields are being rescued from the "interminable shade," and brought under subjection to the plow. Cutting down the trees is not a very formidable task, but pulling up the stumps, *hic labor hoc opus est*.

We have described several machines constructed for the purpose of pulling stumps, and we here illustrate the latest of these inventions, which is claimed to possess advantages over all its predecessors. It is operated by manual labor, the power being so multiplied that when the machine is fastened to the largest oak or pine, the strength of a single man is sufficient to tear up its roots from their deep hold upon the earth.

The machine is formed of a massive beam or lever, A, Fig. 1, one end of which rests upon the stump, a stout chain being passed around the lever near this end and around one of the large roots, while the opposite end of the lever is drawn upward by a pulley, B. This pulley is suspended from the apex of a pair of shears, C, and is operated by a windlass which is turned by the lever, D, a pawl, E, holding the shaft from turning back. It will be seen that, as the end of the lever is raised, the stump is turned over, tearing out the roots upon one side, and either breaking those upon the other, or so loosening them, that the stump may be easily raised from its bed.

The lever, A, is now laid aside, and the shears are moved directly over the stump, as shown in Fig. 2. The pulley being secured directly to one of the roots, by means of the powerful purchase furnished by the windlass and lever, D, the stump is raised up into the air ready to be loaded into a wagon, or otherwise disposed of as may be desired.

In order to make room for the stump between the two leaves of the shears, one of them, the stick, F, is made longer than usual, and provided with a second hole for the connecting pin, so that in the second position the shears may be widely spread, as shown in Fig. 2.

The apparatus may be easily moved about the field, from one stump to another, by three or four men; and for transportation any considerable distance, the broad portion of the shears may be laid upon the axletree of a pair of wheels, and a horse harnessed between the timbers near the angle. Or the two side timbers may be supported on shoes, and the shears drawn along by a horse attached to the end.

For tearing up trees by the roots, a notch is cut in the side of the tree to admit the end of the lever, A, when one of the roots is chained to the lever, and the

work proceeds as in pulling stumps; the weight of the tree top aiding in turning out the roots, and the end of the lever falling out of its notch as the tree goes over.

The peculiar merit of this stump-puller is the mode in which it operates, turning the stump over, and thus overcoming the resistance in the best possible manner.

This machine was invented by Albert Broughton, of Malone, in this State, and secured by Letters Patent dated June 19, 1860. The machines weigh about

quench the flames. The mass is inclosed in stiff paper, and can be discharged from a mortar or howitzer.

Whatever the ball strikes causes a concussion which explodes the novelty-constructed shell, sets the articles within on fire, which dart out in tongues of flame in all directions, and, at the same time, begins a stench perfectly unendurable for a considerable distance from the burning compound. One striking feature of the invention, as we have before remarked, is that the materials must burn up if once on fire, as water has no effect to extinguish the combustion.

These highly-scented fire balls will be principally effective for service upon the sea. When thrown into a vessel, it would inevitably be wrapped in flames, while the air would be so contaminated that breathing would be very difficult to the crew. They might reasonably be pardoned for endeavoring to escape into a purer atmosphere by running below or by abandoning the ship.

## Wool and Flax Fabrics.

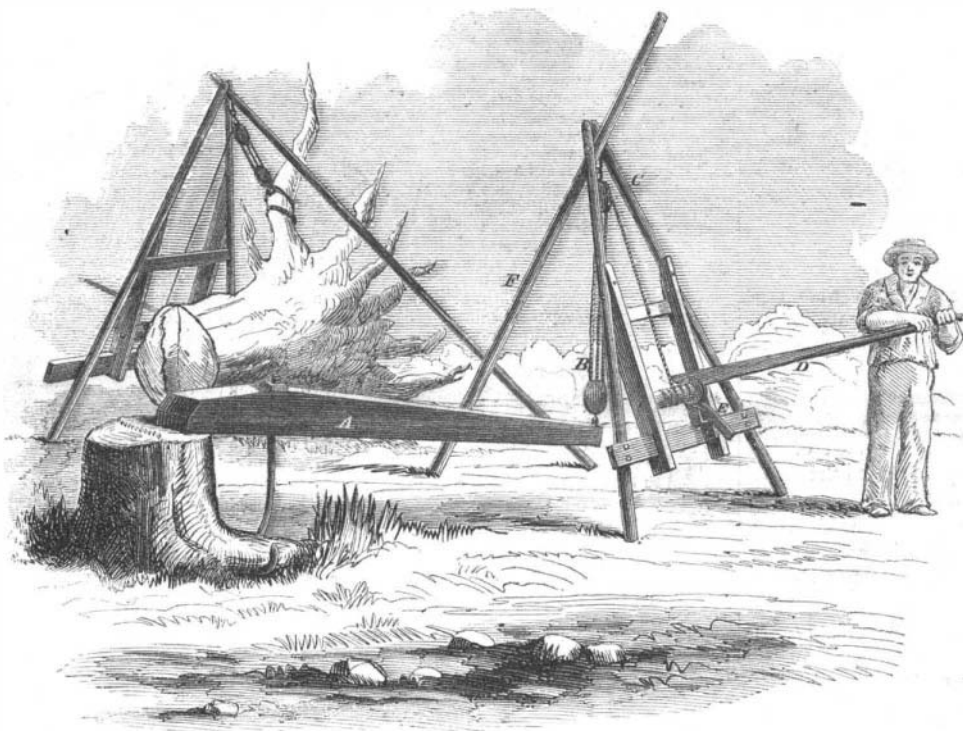
It has been found that flax and hemp reduced to fine, short fiber by Lyman's simple explosive system, is well adapted for mixing with wool in various cloths. We have no doubt but cloth made from the mixture of wool with a certain quantity of flax will be more durable than if made entirely of wool. The druggets and old linsey-woolseys, which, in former times, were more common, were very durable fabrics. Strong

druggets, made of half wool and half flax, were lasting beyond any of the fabrics common among us at present. Short flax fiber is capable of being most intimately intermixed with the wool in the fulling operation. The shortness of its fiber may unfit it for spinning on cotton machinery and for weaving into plain cloth, but not for mixing with wool.

As there will be a deficient supply of cotton this year, there is a necessity of seeking a new material or the production of other fabrics, to take the place of clothing composed wholly or mostly of cotton. By increasing the number of sheep, the clip of wool may be vastly augmented; and by using fine flax fiber to mix with wool, we may obtain a great increase in the raw materials for making cloth, and thus, in a great degree, modify the evils that may otherwise arise from a defective cotton supply.

THE Charleston Courier tells its country readers to save their goose quills, as the stock of steel pens will soon give out.

THE vessels captured by the secessionists, in port and by privateers, since the war commenced, is set down at 41 in number, two of which have been released, and one burned. Thirty of these vessels were seized in port.



BROUGHTON'S STUMP PULLER.

400 pounds apiece, and they are sold for \$75, delivered on board the cars at Malone. For the purchase of town and county rights, or for further information in relation to the matter, inquiries may be addressed to Broughton & Lindsay, at Malone, N. Y.

## A Destructive Invention.

A mobile paper not long since, in discussing the proposed assault of Fort Pickens (the occupation of which by the Federal troops is a continual eye-sore to the secessionists), suggested the use of some noxious substance to be thrown into the fort, and thus suffocate the troops. It thought red pepper might be made very serviceable for this purpose. The suggestion of the Mobile paper, it seems, is about to be made available.

The Boston Traveler states that Gen. Stone, Master of Ordnance, in connection with a committee of the Boston Common Council, has recently been engaged in witnessing some experiments with a noxious and destructive substance, to be used in bombarding towns and cities, or by ships of war. The trials were made upon the Public Garden.

M. Peionier, a Frenchman, claims the invention, which consists of a round ball of different materials, of the most odorous character, and inflammable to such a degree that when once ignited water will not