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NEW SERIES.

IMPROVED ROCK AND STUMP-LIFTER

We have heard the opinion expressed, by men well qualified to judge, that the farms of New England would not sell for enough altogether to pay for the labor that has been expended upon them in digging out stones. It is well known that this labor on one acre of a model farm in Massachusetts cost \$3,000. Several rock and stump extractors have been invented, generally intended to work with a horse and windlass, but the one which we here illustrate is designed to be worked wholly by hand.

The stone or stump is secured by a chain to the lower end of a rack, D, and this rack is then carried up through a block, A, by means of two hooks, G G, working up and down, and alternately catching into the rack on either side, as shown clearly in Fig. 2; the block being suspended from the apex of a tripod or shears, as shown in Fig. 1. As the rack rises, a pawl catches under the teeth, and prevents it from descending. The hooks, G G, are connected by pivots to the long lever, F F, which permits a great multiplication of the power.

The inventor says:—"My machine is attracting great attention. I am permitted to refer to Alex. Holmes, Esq., President of the Old Colony and Fall River Railroad; Hon. Benjamin Rodman, of New Bedford (who has used it the most); C. F. Flint, Secretary of the Massachusetts Board of Agriculture; Mr. Howard, Editor of the Boston Cultivator; Hon. John Brooks of Princeton; and a host of others who have seen it work, that will testify to its superior practical usefulness. The most comprehensive expression was from Capt. T. J. Rodman, Chief of the Ordnance Department at the Watertown Arsenal; on witnessing its operation, he remarked that it was the most economical application of power he ever saw or heard of."

The patent for this invention was granted April 17, 1860, and further information in relation to it may be obtained by addressing the inventor, Caleb Bates, at Kingston, Mass.

SULPHUR IN RAIN.

Several weeks since, we received a letter from a correspondent residing at Amesbury, Mass., in which he stated that on the 18th of June last, after a heavy shower accompanied with thunder and lightning, the ground was found covered with sulphur. He inquired of us regarding the cause of this phenomenon, and we answered him on page 46 of the present volume of the SCIENTIFIC AMERICAN, stating that we could not account for it, although we have frequently heard of like instances taking place in various parts of the country. A correspondent—Mr. James N. Walters—writing to us from Prospect, N. Y., states that the same phenomenon was witnessed in that place at the same time, and

considerable sulphur was also found on the ground and floating on the ponds. The first correspondent stated that he had burned some of the yellow powder, and that it emitted the smell and gave out the blue flame of common sulphur. Another correspondent—Mr. Wm. T. Brigham—writing to us from Boston on this topic, asserts that it was not sulphur at all which fell on the occasion, but the yellow pollen of the pine tree. He states that it is frequently found in summer after thunder-storms, in the form of a yellow powder, covering the ground and floating on the ponds, and that it is

Rev. W. Clayton, rector of Crofton, at Wakefield, in Yorkshire (England), visited the colonies in 1688, he addressed a letter to the Royal Society from Virginia, on May 12th of that year, in which he stated:—"I have been told, by very serious planters, that 30 or 40 years ago, when the country was not so open as it is now, the thunder was more fierce; and sometimes, after violent thunder and rains, the roads would seem to be perfect coats of brimstone, and it is frequent, after much thunder and lightning, for the air to have a perfect sulphurous smell." The explanation which he gave of this

phenomenon is as follows:—

"I should here consider the nature of thunder, and compare it with some sulphurous spirits which I have drawn from coals that I could in no way condense, yet were inflammable, and would burn after passing through water."

In all probability, the sulphur then found in Virginia after thunder-showers was the pine pollen, which, undoubtedly, was very abundant when the country was thickly covered with the original forest. But it is also true that a sulphurous odor is frequently experienced during severe thunder-storms, and there is no way of accounting for this but by supposing it to be ozone created by the flashes of lightning passing through the atmosphere. Ozone is created, on a small scale, by electric sparks being passed through air confined in a vase; and upon the same principle it is prepared on a large scale in Nature's laboratory during thunder-storms.

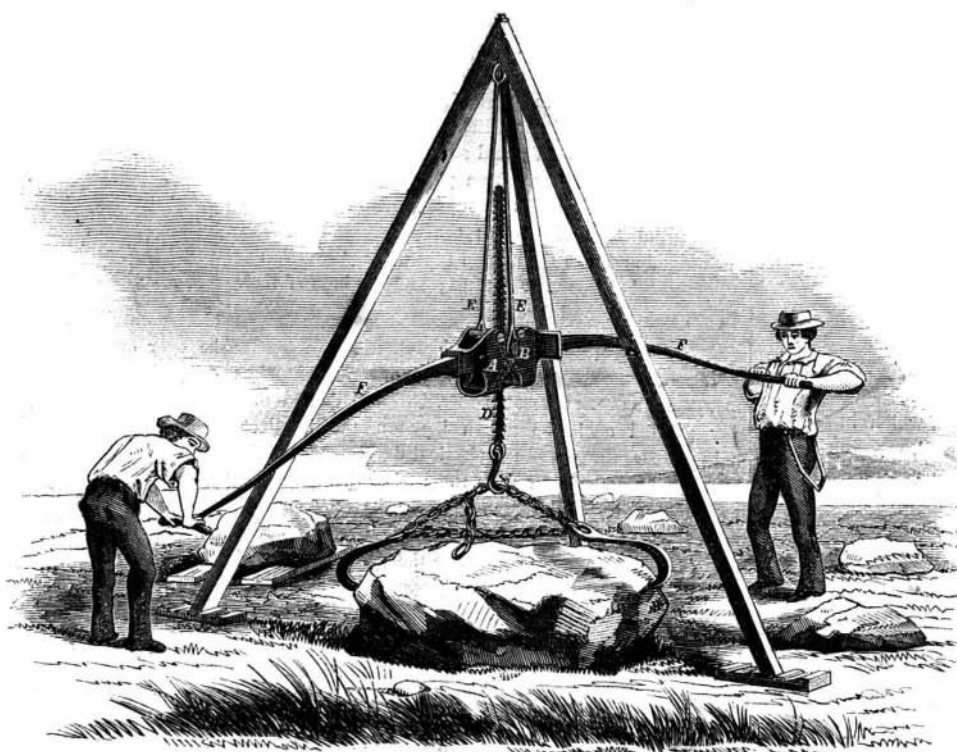
MINOT'S LEDGE LIGHT-HOUSE.

The new light-house on the eastern coast is expected to be completely finished and lighted up on the first week of next month. The first blow struck upon the rock where this light-house has been erected was on the 12th of June, 1858. The old iron light-house was carried away by the fearful storm of April, 1851. During all the numerous and severe storms of last winter, the new light-house stood exposed to the merciless pelting of the waves of the wild Atlantic, without a stone or joint having been disturbed; this too, when the tower was at the height of 60 feet in its most weak state. Having stood without damage in this naked and exposed condition, nothing can prevail against it when finished.

The diameter of the tower at its base is 30 feet, and at the floor of the lantern about 25 feet; the whole height from base to top of lantern is 107 feet.

Workmen are now busy finishing the interior, and it will be lighted with one of the first order of "Fresnel lights." In strength it is said to rival the famous Eddystone light-house in the English Channel.

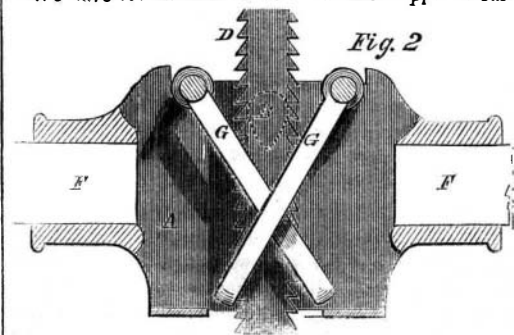
Two savans—Messrs. Deville and Debray—have recently melted large lumps of platinum. This has heretofore been considered an impossible feat.



BATES' ROCK AND STUMP EXTRACTOR.

all imagination in persons who burn it to suppose it smells like sulphur. Professor Gray, at Cambridge, has oftentimes had this vegetable sulphur sent to him for examination; and, in every case, it has proved to be pine pollen. If examined under the microscope, it will be readily detected by its peculiar shape.

We have several times heard that this supposed sul-



phur was the yellow pollen of flowers, and we presume this is a perfectly true explanation of the phenomenon. During the high winds which frequently precede thunder-gusts, the pine pollen may be swept from the forests and carried to a considerable distance. The notion of sulphur being frequently deposited on the ground during thunder-storms is quite old. When the