

Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL, AND OTHER IMPROVEMENTS

VOLUME XII.

NEW-YORK, SEPTEMBER 13, 1856.

NUMBER 1.

THE
Scientific American,
PUBLISHED WEEKLY
At 125 Fulton street, N. Y. (Sun Buildings.)
BY MUNN & CO.

O. D. MUNN, S. H. WALES, A. E. BEACH.

Responsible Agents may also be found in all the principal cities and towns in the United States. Single copies of the paper are on sale at the office of publication and at all the periodical stores in this city, Brooklyn, and Jersey City.
TERMS—\$3 a year, \$1 in advance and the remainder in six months.
See Prospectus on last page. No Traveling Agents employed.

Trial of Reaping Machines in England.

A trial of Reaping Machines, under the direction of the officers of the Royal Agricultural Society, took place on the 13th and 14th of last month, near Colchester, England.—Four machines were entered to cut a field of wheat, consisting of 54 acres. The machines were a McCormick's, by Burgess and Key; a Bell's by Croskill; a Hussey's, by Deane & Dray; and a Palmer's.

All the machines were severely tested, on level and rolling ground, and on furrowed land, and worked well the whole time.

The Judges awarded £20 to Bell's; £15 to Hussey's, and £15 to McCormicks. In making the awards, the Judges said: "From the results of these trials, we regret to observe that very little improvement has been made in this class of machines since last year." They consider that for general harvest purposes, the machines of Croskill (Bell's), and of Messrs. Burgess & Key (McCormick's), are to be preferred; but for reaping only, they think Dray's (Hussey's) decidedly the best machine."

A Prairie Steam Plow.

Bronson Murray, who has suggested the awarding of a prize of \$50,000 for a successful steam plow for the prairies, and who has offered to subscribe \$500, has published another letter in the *Prairie Farmer*, calling upon the rich farmers of Illinois to come forward with their subscriptions. He has received a number of letters from inventors on the subject, and is positive that such a plow will yet be invented. This is the right spirit. The best way to excite inventors to effort is to set before them proper motives and sufficient inducements. We hope the farmers of Illinois will respond to the noble suggestions of Mr. Murray.

Standing Tree Cutter.

Our engraving illustrates a novel improvement for cutting down trees, for which a patent was granted to Mr. G. C. Ehsam, of New York City, June 25th, 1856.

The tree is encircled at its base by a strong iron ring, A, which is hinged, so that it may be readily opened and closed for adjustment. Screws, B, bear against the tree, and hold the ring firmly in place. The cutting is done by means of a cutter, C, which is carried round and round the tree by means of a circular rack, D. The rack fits into a cavity at D' (fig. 2) in ring A, and is moved by a pinion, E, power being applied to a crank in the manner shown.

The upper edge of ring A, is covered by a flat ring, F, which is hinged, the edges where it opens being brought together and secured by means of the projecting ears, G G. These ears are firmly attached to the ring, F. They are hollow, and through their interior passes the tool stock, H, which carries the cutter, C. I is a ferule, which holds the ears together.

The upper edge of the ring, A, has screw threads cut upon it, throughout its entire circumference (see fig. 2.) The lower surface of the tool stock, H, also has corresponding screw threads, which rest in and fit the screw threads of A. There is a depression in the top of rack, D, to suit the shape of the lower part of stock, H, so that when the rack goes round it carries with it stock H. The screw thread

MACHINE FOR CUTTING DOWN TREES.

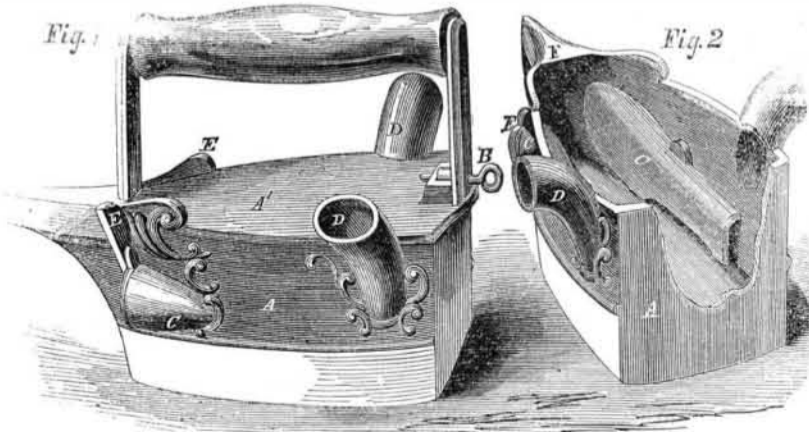


of stock, H, fitting, as before described, into the threads in the ring, A, it follows that when stock, H, is moved around it will also be fed inward towards the center of the tree. In this manner a steady, but very gradual inward feed of the cutter is produced, the advance of the tool stock at each complete revolution around the tree being only equivalent to the width of one screw thread.

This invention has been tested by a working machine, and found to operate with entire success. For cutting down locust trees and other species of valuable wood, it effects an important saving, as it may be applied so as to cut close to the surface of the ground. In some localities the loss of wood for want of some means of cutting close down is from \$3 to \$5 per tree.

Another advantage of the improvement is that the butt of the tree is cut off at right angles to the trunk, so that no recutting or re-sawing is necessary to fit the end of the log for the mill. The stump is also left flat, which hastens its decay. Chopped stumps are left with crevices, and become covered over with substances which prevent the entrance of moisture, and consequent decay. The inventor informs us that with the assistance of this invention he can cut down trees in less than half the time that the same can be cut with an axe. The parts are all simple, strong, and effective. The method of fitting the machine to the tree and again disengaging it, is convenient and quick. For further information address the inventor, No. 212 Broadway, Room 10, New York City.

IMPROVED SAD IRON.



Improved Sad Iron.

The invention herewith illustrated belongs to that class in which the fire for heating the iron is carried within the same. Irons of this kind are generally attended with a serious objection, to wit: the injury of the work by the

blowing out of ashes when the instrument is moved. This is caused by a defective arrangement of the draft openings.

The improvement before us consists in such an arrangement of the draft openings that the ashes cannot blow out, no matter how quickly

the iron is moved; an abundant supply of air is likewise constantly furnished to the fire, and proper combustion thus steadily maintained.

In our engraving, fig. 1 is a perspective view of a complete iron, A being the shell, and A' the top or cover. In fig. 2 the cover, A', is removed in order to exhibit the interior arrangements.

The fuel used is fine charcoal, which is deposited any where on the inside of the bottom of the shell. Access is had to the interior by removing the top, A', which is conveniently done by taking out the key, B. C are the draft openings, which are cast in tubular form, and extend from the front of the iron, inward, to the rear part, as shown. D are the escape openings, placed immediately above the termination of the draft tubes. The openings, D, terminate, externally, on the sides of the instrument, and when the latter is in use there can be no ingress of air, as the mouths of D are never brought against the air. Both the draft and escape openings are so arranged that the ashes cannot, under any circumstances, blow out. The mouths of the openings, C, are furnished with valves, E, which may be opened or closed at pleasure, and the heat thus perfectly regulated. The front end or nose of the instrument, F, is shaped like a fluting iron, for which purpose it is intended to be used.

This invention is rapidly coming into general use, and is considered far superior to the sad irons commonly employed. Invented by Geo. W. Bishop, Brooklyn, N. Y. Patented May 6, 1856. Address or apply to D. Tilton, 39 1-2 South street, New York City, for further information.

Tunnel through the Green Mountains.

The Worcester, Mass., *Palladium*, states that the great Hoosic Tunnel, of the Troy and Greenfield Railroad, through the Green Mountains, is progressing with spirit. Messrs. Haupt and Galbraith, have contracted to complete the whole line, and they commenced active operations on the tunnel on the 1st of May last. They have now penetrated 200 feet into the mountain, and progress at the rate of between 4 and 6 feet per day, leaving the walls and ceiling of the tunnel in a very smooth condition. The work is done in three sections—one gang working in advance of the other. The first gang of ten men opens the headway at the top of the tunnel, 6 1-2 feet high and 14 feet wide, then follow the second and third gangs at intervals of about fifty or sixty feet, each taking the whole width and a proportionable share of the remaining depth, so that when the tunnel is completed, the aperture will be 21 feet high and 24 feet wide.

There are two sets of men,—one working by night, the other by day. No loss of time on account of the weather, summer or winter, and the work is to be pushed with the utmost vigor. The rock is mica slate, intermixed with quartz, and yields very readily to the drill and blast. It is a great work—one of the greatest of the kind ever undertaken in the world, and if completed it will be a triumph in civil engineering for which the American people may well be proud.

The Expected Comet.

The news by the last steamer from Europe contains an account of a comet seen by a gentleman at Limerick, Ireland, for several nights. The *Limerick Observer* states that it is the long-expected comet of 1556. It is our opinion that if such a comet had appeared, Limerick would not be the first place where it would have been seen. The observers in the observatories of Europe and America, with their powerful instruments, would rather get ahead of a casual star gazer.