

Science and Art.

Fish Eggs.

At a late sitting of the French *Société Zoologique d'Acclimation*, M. Millett detailed a series of experiments he has lately made in conveying fecundated fish eggs. The result was, he said, that the eggs, when wrapped up in wet cloths and placed in boxes with moss, to prevent them from becoming dry and being jolted, may safely be conveyed not only during twenty or thirty, but even more than sixty days, either by water, railway, or diligence. He added, that he had now in his possession eggs about to be hatched, which have been brought from distant parts of Scotland and Germany, and even from America. M. Millett stated a fact which was much more curious—namely, that fecundated eggs of different descriptions of salmon and trout do not perish, even when the cloths and moss in which they are wrapped become frozen. He had even been able, he said, "to observe, by means of a microscope, that a fish just issuing from the egg, and of which the heart was seen to beat, was not inconvenienced by being completely frozen up. This he explained by the fact that the animal heat of the fish, even in the embryo state, is sufficient to preserve around it a certain quantity of moisture."

Does the Moon Rotate.

In all works on astronomy, it is assumed and taught as a fact, that the moon revolves on its axis once in twenty-eight days. J. Symonds, an inspector of schools, in England, wrote a letter to the *London Times*, expressing his surprise that natural philosophers should have maintained such a dogma, and that it should be taught in all schools as a fact of science. If his conclusions were wrong, it would have been very easy for astronomers to have set him right, but not one of the eminent astronomers in England, have presented a single good and conclusive argument in favor of the moon rotating theory, while some have rather abused the inspector for questioning the old dogma. It is a positive fact, that a great deal of what is taught in schools is assumption, not fact. Assumptions by frequent uncontradicted repetition come to be regarded in the course of time, by students, as facts. This has been the experience of every man of an original mind, and it has thus been the means of clogging the wheels of science. As it relates to the common astronomical assumption, viz., that of the moon's rotation on her axis once in 28 days, how can this be so when it continually presents the same face to the earth? If it has a rotation on its axis, it should present different phases. We perceive than Evan Hopkins, C. E., and David Mushat, M. E., in the *London Mining Journal*, have sustained the views of Mr. Symonds in very able articles.

Form of the Earth.

The earth being round like a ball, it follows that at a certain distance, even though our vision can reach much further, its form will prevent us from seeing objects even if its surface were perfectly smooth. It has been calculated that at 600 yards an object one inch high cannot be seen in a straight line; at 900 yards, two inches; at 1400 yards, five inches; at one mile, eight inches; three miles, six feet, so at that distance a man would be invisible. In leveling, it is usual to allow the tenth of an inch in every two hundred yards, or eight inches in a mile, for convexity.

Improved Stump Puller.

The old fashioned way of getting rid of stumps was to let them stay in the soil and rot. The clearing-up of a piece of ground required half a generation; our forefathers took things easy, and were in no hurry. But the modern "go-ahead" principle recognizes no such waste of time. Our modern farmers enter a forest in the morning, fell the trees, cut them into lumber, and pull the stumps, all by machinery; in the afternoon they plow the ground, and seed it down into smooth meadows.

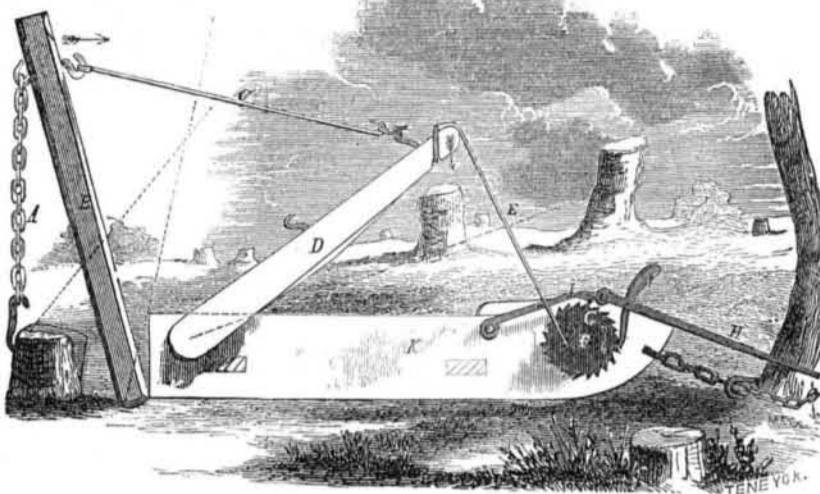
Our engraving shows a recent improvement

in stump pullers, for which letters patent were granted to Mr. Solomon W. Kuggles, Fitchburg, Mass., May 6, 1856.

The chain, A, is attached by a hook, at one end, to the stump, and at the other to a strut, B; this is connected by rod, C, with

lever D, the forward end of which has a strap, E, which winds around the shaft, F; this shaft has a ratchet wheel, G, upon it, operated by lever, H. When the lever is raised, the pawl, I, catches in the teeth of the ratchet wheel, G, and turns it in direction of the ar-

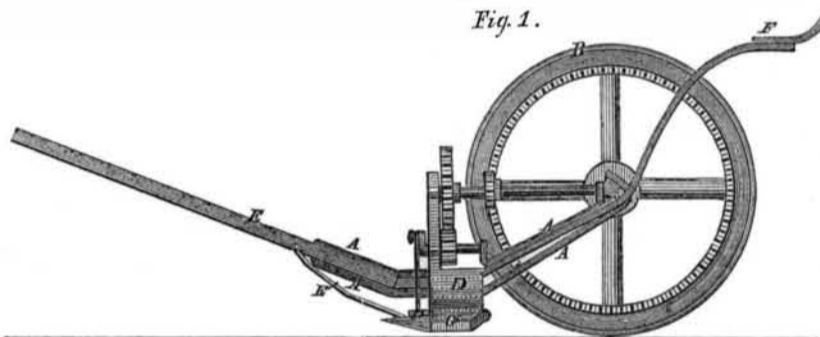
MACHINE FOR PULLING STUMPS.



and prevents the ratchet wheel from turning back. By the winding of strap E on shaft F, the lever, D, is brought down, strut, B, raised to a perpendicular position, and the stump pulled. Most of the parts are attached to the sled, K, on which they are conveniently transported from place to place.

This machine is very compact, portable, and economical to manufacture. It is also very powerful. A force of 200 lbs. applied to the end of lever H, will lift 3000 tons on chain, A. The power of the apparatus is only limited by the strength of the wood and iron of which it is made. Address the inventor for further information.

IMPROVEMENT IN MOWING MACHINES.



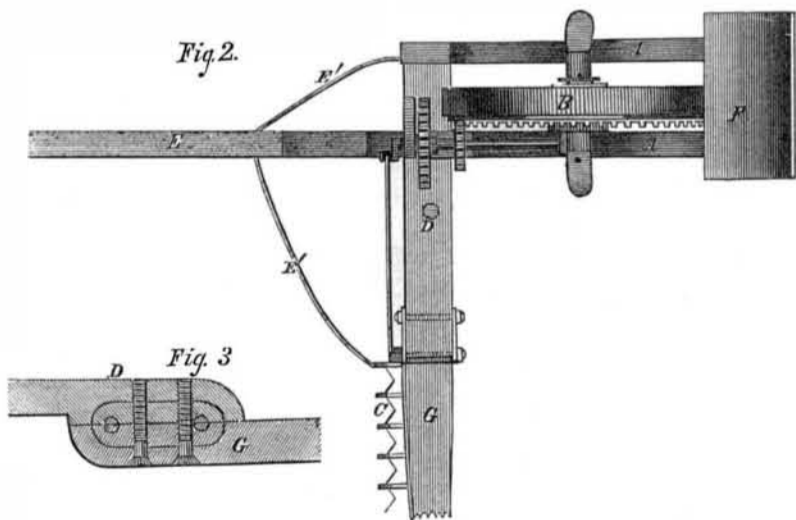
New Mowing Machine.

Machines for mowing are coming into such general use, that any improvement which has for its object the lessening of the expense of their construction, is worthy of attention.

The invention illustrated by the accompanying engravings belongs to this class. Figure 1 is a side elevation; figure 2 a top view, and fig. 3 a section.

One improvement consists in making the frame, A, of light strong iron, and placing the driving wheel, B, between, as shown in fig. 2. The driving wheel has cogs upon it, by means of which, and suitable pinions, pitman, &c., motion is given so the cutters, C. The

lower parts of frame A bend down and connect with the bar, D; they also extend forward far enough to receive and support the draft tongue, E; the tongue is further secured by a brace, E'; the upper part of frame A terminates in a driver's seat, F. The finger bar, G, is made of wood; it is attached to D, by an over-lap and bolts, as seen in figure 3; the connection is further strengthened by bolts and plates on the opposite sides of the parts, shown in dotted lines; the finger bar is of wood, made in the usual manner. The pinions are placed quite near the driving wheel, so that the gearing is out of the way, and protected from the grass, dirt, &c., while the ma-



chine is rendered very compact. The method of constructing the frame and attaching the tongue is at once simple, strong, and economical in construction. The joint between bars D and G is also cheap, but very strong. This invention possesses several valuable features, and will, no doubt, find favor among agriculturists.

The inventor is Mr. Collins B. Brown, Alton, Ill. Further information can be had by ad-

dressing Messrs. Buckmaster & Wise, as above, who are joint owners and extensive manufacturers. Patented Sept. 4, 1855,

Gold Coinage.

In March last, \$2,580,000, in double eagles, were coined at the Branch Mint in San Francisco.

Every real invention is a point gained by the world.

Improved Ventilation of Ships.

A very great improvement has taken place in the ventilation of ships trading between our Atlantic and Pacific ports. Great losses had been experienced upon goods sent to California from sweating, caused by defective ship ventilation. These losses fell upon the owners of the merchandise; for, strange as it may seem, it had been decided in suits at law that the ships were not liable for damages. An improved system of ship ventilating was imperatively demanded, and we understand, by the *San Francisco Chronicle*, that this want has been supplied. The clipper ship *Electric Spark*, from Boston, arrived at San Francisco on the 9th April, with an improved plan of ventilation, which operated so well that all the goods were found in the most excellent order, and the very paint between decks looked as fresh as when put on—something not witnessed there before. The plan of ventilation is seemingly very simple; its object being the continual ingress of a current of fresh air between decks, and the egress of foul air to prevent the heavy moisture, while in the tropics condensing (sweating) on the sides and under the decks. The apparatus consists in having between decks two large perpendicular spouts forward under the top-gallant forecabin, which can be kept open in all weathers; ten smaller spouts descending on the inside of the main deck house, but receiving air outwardly from the side of the house; and lastly, six similar spouts aft in front of the poop. The spouts in the main deck house only are closed in bad weather. These spouts are square and made of wood and are arranged in such a manner as to occupy little space while the ship is under way; the greater part of the time a constant and free circulation of air is going on below; and even in the worst of weather, the two spouts forward remain open to permit the egress of foul air. Other ships trading to California have also adopted the same ventilating system and with equal success.



Inventors, and Manufacturers

ELEVENTH YEAR

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