

## Science and Art.

## Great Volcanic Eruption.

From our interesting exchange, the *Pacific Commercial Advertiser*, Honolulu, we learn that another great eruption of the volcano, "Mauna Loei," in the Hawaiian Islands, took place on the 23d of January last, and it is stated to be the grandest display of natural fireworks ever witnessed on that wonderful island. A new crater had formed in the mountain at an elevation of 6,500 feet, and the scene is represented to have been awfully grand, especially during the night. It is believed by many that such eruptions are caused by water finding access to subterranean deposits of pyrites, thereby causing their chemical decomposition, and finally producing an explosion. No steam, however, has been noticed arising from this volcano, so this theory does not seem to be applicable to this case. The new crater forms a hole 800 feet wide in the mountains; the molten lava is first thrown upwards in columns a thousand feet high, then it falls down in a huge fountain of sparkling fire, and pours down the mountain side in a broad seething river, devouring all vegetation in its course. In several places it forms lofty cascades, which have a terrible appearance; down from a height of several hundred feet, the fiery mass takes plunge after plunge into the boiling cauldron below, then dashes onward in surges resembling waves of molten brass. This eruption is the greatest which has taken place in half a century, and much excitement prevails among the people, as the lava seems to be moving towards the town of Hilo, as it did in 1855, threatening its destruction.

## Improved Shingle Machine.

The term "shingle," as applied to thin pieces of wood for covering or roofing houses, is peculiarly American, and although Webster does not seem to notice the fact, it is never used in such a sense in Britain. This being the case, it naturally follows that the machines which are constructed for their manufacture are purely national, and there are few classes of machinery on which more of our peculiar nervous ingenuity has been expended than on these.

Our illustration is a perspective view of the one invented by Kassen Freeman, of Fond du Lac, Wis., for which he has applied for a patent. He patented a similar one in principle, June 29, 1858, and this is an improvement upon the former invention. A represents a frame having a vertical arbor, B, in its center, which has the circular plate, C, upon its upper end. This plate has a number of square openings, *a*, made within it, in each of which is a sliding dog, D, carrying, by arms, *i*, a friction roller, *k*, upon a small shaft, *j*. The inner edges, *c*, of *a*, form stationary dogs or jaws.

The plate, C, is toothed on its periphery, and a pinion, E, gears into these teeth, so that it can, on motion being given to its shaft, rotate C. On the upper part of frame A, and below C, a curved stationary grating or bed, G, is placed; the bed being formed of bars, *d*, fitted into cross-bars.

At the end of G a tilting-bed, H, is placed, which can be made to assume two positions. Underneath H a sliding double wedge, I, is placed and fitted between guides, *g g*. To the upper end of I an upright pin, *h*, is attached, and to the under side of C a wedge-shaped block is fitted.

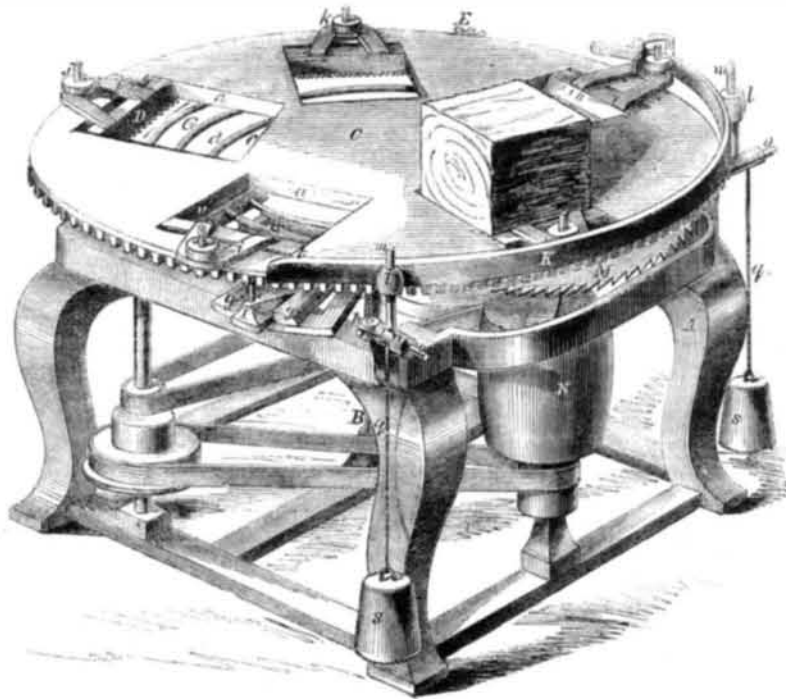
K is a curved bar which forms part of a circle concentric with C, and having two eyes or sockets, *l l*, attached to its outer side, which fit loosely on vertical rods, *m m*, attached to sockets, *n*; these latter slide freely on rods, *o*. The rods *o* are attached to the frame by pivots *p*. To the inner edge of each rod, *o*, a cord, *q*, is attached, which passes over pins, *r*, in the sockets, *n*, and from the lower end of *q* depends a weight, *s*. The tendency of *g* is to keep K towards the plate C, and against the

rollers *k* on the rods *j* of the dog D. One end of K is slightly curved out as shown at *t*, and the opposite end has a curved bar attached to it inside.

M is the saw placed at the end of the tilting-bed H, upon an arbor provided with a belt wheel, N. The saw is surrounded with a trough or box, made of wood or sheet metal, to

carry off the sawdust and deposit it in one place, and at the same time prevent it interfering with the smooth working of the machine.

The operation of the machine is as follows:—Motion is given to the shafts, B N and E, by any suitable arrangement of belts, and "bolts" are placed in the openings, *a*, of the table, G,



FREEMAN'S IMPROVED SHINGLE MACHINE.

which, as it revolves, carries the bolts round on the stationary bed, G, and tilting-bed, H, and saw, M; the latter cutting the shingles from the block, which are inclined first in one direction and then in the other by the tilting of H, through the medium of the wedge on the under side of C.

In order to allow the bolts to be tilted they must be free from the dogs D, and they must, of course, be securely clamped while being acted upon by the saw, M. The bolts are clamped just after being tilted in consequence of the

rollers, *k*, of the dogs coming in contact with the curved bar, K, which is held against them by the weight, *s*, and the dog D is forced against the bolt and holds it during the sawing. After the bolt leaves the saw the roller *k* passes behind the curved bar attached to the other end of K, and the dog is released from the bolt. By this arrangement the bolt is dogged and undogged in a very simple manner. For any further particulars concerning this excellent machine, address C. T. Pierson, No. 24 Broadway, New York.

## Norvell's Choking Strap.

An unruly horse, mule, or ass is every unpleasant animal, which not only tries the patience of its master, but often places the anatomy of that same master in great jeopardy of being suddenly disturbed. It is therefore very desirable that the driver or rider of an animal should have some means of letting it become fully aware of the fact that it has a master whom, force per force, it must obey. R. B. Norvell, of Huntsville, Ala., has invented the choking strap represented in our engraving which is the very thing for the purpose.



A is the rein, and B C D, the straps that form the bridle and keep the bit in the animal's mouth. On the cheek strap, B, a small pulley, *c*, is placed, one each side, and over this passes a cord, E, carrying a flat loop, F, that passes under the horse's throat, the other ends of the cord passing through the bit ring and like a common rein over the neck. The slightest pull on this chokes the horse, and in a convincing manner shows him the nature of

his position; should he be restive, inclined to run away, or perform any of those monomaniacal acts so common to the equine race, a slight choking immediately remedies it. Some horses are given to breaking their halters, ropes or reins, when hitched up, of which habit they are easily cured by attaching this choking strap (for it is equally applicable to halters as to bridles), and when the horse makes the discovery that the harder he pulls the more he chokes, the pulling will soon cease and the horse refrain from his bad habit. To the professional or amateur "breaker" this must be invaluable, as it gives him such a perfect control over the wildest specimen that may be brought to him, and we have no doubt but that it will be properly appreciated by such persons.

The inventor has applied for a patent, and will be happy to furnish any farther particulars upon being addressed as above.

ELDERBERRY WINE.—On a cold winter's night, when one has a cold, and feels wheezy generally, we should like to know any physic that is equal to elderberry wine. As an article to have in the house, not to be used constantly as a beverage, but occasionally as a gentle stimulant—a sort of medicine when one does not actually want physic, there are not many things equal to the juice of the elderberry. Both these statements are to be qualified with the proviso that it must be good and pure. From an item that appeared in our columns lately, entitled "A Case of Illness," in which we mentioned the case of a person who was made ill by drinking this same liquid, it would appear that there is some of this wine sold which is neither pure nor good; it is therefore with much pleasure that we can recommend that manufactured by Alfred Speer, Passaic, N. J.; some samples that he recently sent us are the best we ever tasted.

A HEAVY DAY AT THE POST OFFICE.—Wednesday, the 30th ult., will be remembered by the clerks in the New York Post Office. The foreign letters despatched were 35,187; the foreign letters received per *Niagara*, *Kangaroo*, and *Persia* were 72,499; add to these 90,000 for domestic—sent and received—and we have a total of nearly 200,000 letters, making the largest and heaviest day's work ever known in the New York Post Office.

BANKING ITEMS.—There are 54 banks in New York city, having a combined capital of \$68,048,385. On the 2d inst. the loans amounted to \$128,702,192; deposits, \$110,614,425; specie, \$25,732,161; circulation, \$8,221,000. These banks make their exchanges with each other through a Clearing House established for this purpose, and on the 4th inst. \$27,000,000 was exchanged, which is the largest amount since the flush times of 1857.

INSURANCE.—There are in the cities of New York and Brooklyn eighty-six insurances, whose combined capital is \$18,000,000. The amount paid for losses in 1858 was \$2,573,978. Seventy-nine companies paid dividends in 1858, the highest of which was thirty-two per cent on the capital and the lowest five per cent. These companies are generally managed by careful and honorable men, who adjust losses with a spirit of liberality and fairness, a natural result of which is to increase the business of these companies every year.

MONEY.—The first mint in the United States was put in operation in 1793, and from that time until 1857 the whole amount of gold coined was valued at \$481,422,078 70; value of silver coinage, \$107,527,917 53; value of copper coins, \$1,662,823 55; making the valuation of the whole coinage \$589,612,819 78. The whole number of pieces coined in this time was 623,640,499.



INVENTORS, MILLWRIGHTS, FARMERS  
AND MANUFACTURERS,

FOURTEENTH YEAR

PROSPECTUS OF THE

SCIENTIFIC AMERICAN.

This valuable and widely circulated journal entered upon its FOURTEENTH YEAR on the 11th of September.

It is an Illustrated Periodical, devoted to the promulgation of information relating to the various MECHANICAL and CHEMICAL ARTS, MANUFACTURE, AGRICULTURE, PATENTS, INVENTIONS, ENGINEERING, MILL WORK, and all interests which the light of PRACTICAL SCIENCE is calculated to advance.

All the most valuable patented discoveries are delineated and described in its issues, so that, as respects inventions, it may be justly regarded as an *Illustrated Repertory*, where the inventor may learn what has been done before him in the same field which he is exploring, and where he may publish to the world a knowledge of his own achievements.

Reports of American Patents granted are also published every week, including official copies of all the PATENT CLAIMS. These Patent Claims are furnished from the Patent Office Records expressly for this paper, and published in the SCIENTIFIC AMERICAN in advance of all other publications.

Mechanics, Inventors, Engineers, Chemists, Manufacturers, Agriculturists, and people in every profession of life, will find the SCIENTIFIC AMERICAN to be of great value in their respective callings. Its counsels and suggestions will save them hundreds of dollars annually, besides affording them a continual source of knowledge, the value of which is beyond pecuniary estimate.

TERMS OF SUBSCRIPTION—Two Dollars a Year, or One Dollar for Six Months.

CLUB RATES.

Five Copies, for Six Months.....\$4  
Ten Copies, for Six Months.....\$8  
Ten Copies, for Twelve Months.....\$15  
Fifteen Copies, for Twelve Months.....\$22  
Twenty Copies, for Twelve Months.....\$28

Southern, Western and Canadian money or Post office stamps, taken at par for subscriptions. Canadian subscribers will please to remit twenty-six cents extra on each year's subscription, to pre-pay postage. For all clubs of Twenty and over, the yearly subscription is only \$1 46. Names can be sent in at different times and from different Post Offices. Specimen copies will be sent gratis to any part of the country.

MUNN & CO., Publishers and Patent Agents,  
No. 37 Park-row, New York.