

Feeding Horses.

For a period of over 30 years, more or less, says a correspondent of the *Country Gentleman*, horses have been under my control. I personally superintended the feeding. During this time no horses have died, and I have had little sickness. A straw cutter, with rawhide rollers, has been in continual use till the present time. In the cutting of the food for two teams, enough is saved in one year to pay for its purchase. While the horses are eating their dinner, enough can be cut for the next meal; then watered, to moisten it and destroy the dust, and with it four quarts of meal is ample for each horse. The meal is one third corn, one third oats, and the other shorts. A variety is made by giving a few small potatoes or carrots weekly. The benefits resulting from this manner of feeding are that we have no sick horses, they being always in good health and order; there is no danger of founder from hired men feeding when too warm: they can eat it sooner, and are ready to go out; neither is anything wasted (by throwing from the manger, etc.), and it does them more good, I believe, as no whole grain is passed and lost. Being out of meal for a few days, a number of feeds were given them of small ears of corn, with plenty of out hay, moistened. Two had to be taken to the city immediately for treatment of colic, and, by prompt action at once, they recovered. This is the last of whole grain feeding. Of course the same good quality of hay and grain is given when cut as when they cut it for themselves.

THE COLORADO MUD VOLCANOES.

The curious mud volcanoes of Southern Colorado are located about ten miles to the southeast of Mount Purdy, an extinct volcano, some 600 feet in height. The remarkable aspect of this region is well shown in the annexed engraving, from *La Nature*. In its center is a mud lake which constantly boils, throwing up jets of thick viscous liquid. Around this seething cauldron are hundreds of craters of dry grayish mud. The cones are from three to six feet in height and five to twenty feet in diameter. Some, having a narrow opening, eject sulphurous vapors; others, with large mouths, seem filled with mud, which they throw out at irregular intervals to heights of from four to six feet. The temperature of the mud and of the sulphurous vapors is about 210°. A small stream of clear water near the central lake reaches 199°, and ponds in the neighborhood are found to be respectively at 96° and 100°. Lieutenant Wheeler, in his geographical survey, discovered a vast hill near this mud lake which was the product of ancient eruptions. The soil is chiefly composed of sulphur, which exists in many cases in a purely crystalline state.

It has been suggested that the pitted surface of the moon might be caused by volcanoes of this sort.

THE REGNIER ELECTRIC LIGHT.

We take from *L'Inventeur* the annexed engraving of a new form of the Regnier electric light, which operates continuously for 24 hours. The essential feature of the apparatus is the circular carbon plates used instead of points, the voltaic arc passing between the edges of the rotary disks.

The device will be easily understood by the following reference to the illustration. *a* is the base, *b b'* forked standards, *d d'* carbon disks or rheophores having a continuous rotary motion imparted to them by the clockwork motors, *f* and *f'*. At *g g'* are the trunnions on which both disks and motors oscillate; *i h* is a forked lever connected to the motor, *f*, by a long curved rod; *k* is a button screwed on the end of this lever, and ending in the cup, *l*. By means of this screw the motor, *f*, is caused to move backward or forward in order to adjust the carbons.

m is a solenoid commanding a soft iron magnet (not shown). Through the rod, *p*, crank, *r*, and arm, *s*, this magnet pulling downward moves the motor, *f*, to the rear and determines the separation of rheophore, *d*. At *t t* are springs moving the rheophore, *d'*, in contact with the rheophore, *d*, to establish the light. These springs, attached at *u* and at *v*, act on the motor, *f*, through crank, *r*, and arm, *s*. *x y x* is a forked lever attached at one end to the springs and carrying at its other extremity a set screw by means of which the springs are more or less extended and the lamp regulated. At 2 and 3 are the binding screws for the battery wires.

Progress of the Great Jetties.

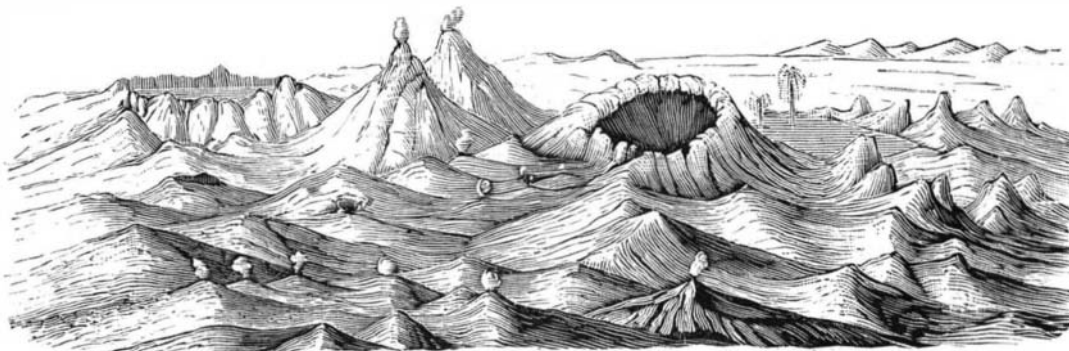
Captain M. O. Brown, U.S.A., Government Inspecting officer at the mouth of the South Pass of the Mississippi, has made a survey which shows a twenty-two foot channel over two hundred feet wide, entirely through the works; and a practicable channel with a least depth of twenty-three feet. This entitles Captain Eads to the second payment of \$500,000. The Secretary of War will have a survey made by a special board of engineers before making the payment.

LOVEGROVE'S TWO-HORSE POWER ENGINE.

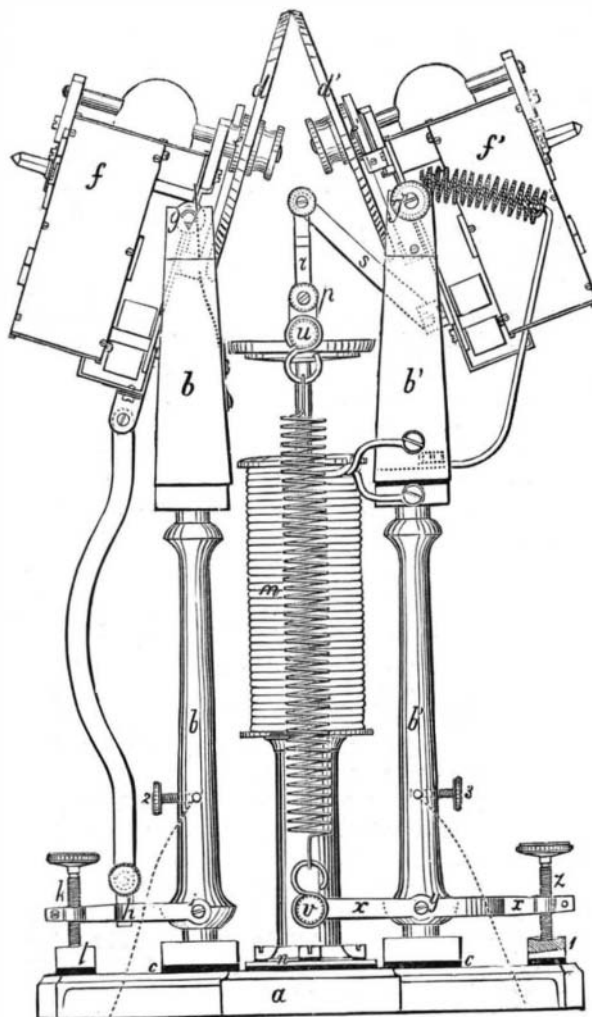
We illustrate herewith a small two horse power engine and boiler which the manufacturers claim possesses all the qualities of durability, good design, and economy of fuel.



The cylinder is of the ordinary three-ported construction, and the steam chest is cast upon the cylinder. The piston is cast iron with self-adjusting packing rings which work free. Suitable provision is made to take up lost motion wherever it is likely to occur. The bearings are long and

**THE COLORADO MUD VOLCANOES.**

large. The pump is connected to the shaft and is driven by a crank. It is so placed as to be accessible at all times. The base is in one piece and so constructed as to admit of belting from the fly wheel in any direction. The diameter of the cylinder is 3 inches, stroke 4 inches; fly wheel 12 inches

**THE REGNIER ELECTRIC LIGHT.**

diameter, 3 inches face, turned for a belt. The boiler is made of the best charcoal hammered iron, has lap-welded tubes, and is tested to 200 lbs. pressure before leaving shop. It is of the vertical tubular type, 18 inches in diameter, 42 inches high, with twenty 2 inch tubes 30 inches long. It is furnished with grates, base dome, safety valve, steam gauge, water gauge, gauge cocks, blow-off cock for check, and cock between boiler and pump, complete and ready to run.

For further information address Lovegrove & Co., manufacturers, 121 South Fourth street, Philadelphia, Pa.

New Mechanical Inventions.

Messrs. Estavau Gorriti and Pedro Unanue, of Navarre and Guipozcoa, Spain, have patented a new Automatic Feed Water Regulator for Steam Boilers. Water chambers are arranged on the top of the boiler, which are, by suitable connections, alternately filled with water and discharged into the generator. The arrangement is such that the required quantity of water is always supplied, whether the tank is located above or below the water level. In the latter case the regulator acts as a feed pump.

A new Brick Machine, devised by Mr. R. W. Brownhill, of Walsall, England, is an improvement upon that class of apparatus in which a vertical plunger drives down the clay from the hopper into a mould. The clay is afterwards pushed to one side, and compressed into shape by steam-heated plungers actuated by cams. The brick then passes to a traveling belt for removal.

Mr. W. H. Field, of Taunton, Mass., has improved upon the Nail Plate Feeder patented by him December 14, 1875. The new features are exceedingly ingenious but cannot be clearly described without the aid of drawings. Their effect, however, is to render the machine more reliable and accurate in operation and less liable to get out of order or to need adjustment.

An excellent device for bookbinders has been invented by Mr. Carl Theene, of Minden, Germany. It is a Book-Stitching Machine, constructed on the general principle of a shuttle sewing machine, with a needle-lubricating apparatus attached to the presser bar and foot, and a continuous feed and guide arrangement that is adjustable for the different sizes and thicknesses of books.

In order to extract the silky Fibers from the "Pita" Leaf, Mr. Carlos de la Baquera has devised a machine, which embodies a scutching wheel of peculiar construction, and also an adjustable chute and holder. The action of the scutching blades, hackling combs, and wire brush, effectually removes the outer coating and pulp from the leaf, leaving the fibers clean and unbroken.

No less than thirteen new devices are embodied in the Brick Machine recently patented by Mr. Z. Vanier, of Westborough, Mass. After being placed in a hopper the clay goes to a cylinder and thence to moulds, being agitated and wedged downward by blades. Toggle devices afford the pressure, and the bricks are then carried forward and discharged by a follower, a table having risen to receive them. The entire construction is ingenious and mainly new.

Mr. Edward L. Byron, of Moes River, P. Q., Canada, has invented a new Hand Truck, the frame of which, when it is used for moving small packages, rests upon the axle. When, however, large bundles are to be carried, the frame may be easily elevated and the load thus raised above the wheels.

In a new Machine for Filing Gin Saws, patented by Mr. Patrick O'Neill, of Murfreesborough, Tenn., three-cornered files are suitably held and caused to reciprocate by a crank movement. Means are provided for moving the saw cylinder ahead, guiding the files, etc. The apparatus is an ingenious and efficient machine.

A new Windmill has been patented by Mr. John J. Reed, of Lyons, Iowa, which is so made that the wind, as it increases in force, will turn the wheel more and more aside, and finally stop it. Means for accomplishing the same end by hand are also provided. The vane may be made more or less sensitive to the wind by a simple adjustment.

Royal C. Grant, of Middleport, Ohio, has patented a Rotary Nail Machine for making cut nails. The nail plates are placed in a vertical hopper having spiral inclines for guiding them into the feed tube, by which they are held and rotated while being cut into blanks. Each plate is oscillated in a vertical plane, to change its inclination to the cutters, by means of spring bars, which press against the side edges of the plate and are oscillated by a tappet at each half revolution of the feed tube. The cutting, gripping, and heading devices are attached to a rotating cylinder, located directly beneath the tube through which the nail plate is fed, and by which it is rotated. The end of the nail plate is gripped, the blank cut off, then lowered into alignment with the header, next gripped by a die, and finally headed and released from the gripping device, and delivered from the cylinder into a suitable receptacle.