

## ASTRONOMICAL NOTES.

BY BERLIN H. WRIGHT.

PENN YAN, N. Y., Saturday, April 13, 1878.

The following calculations are adapted to the latitude of New York city, and are expressed in true or clock time, being for the date given in the caption when not otherwise stated.

## PLANETS.

H.M.		H.M.	
Mercury sets.....	8 17 eve.	Saturn rises.....	4 36 mo.
Venus rises.....	3 36 mo.	Uranus in meridian.....	8 24 eve.
Mars sets.....	11 00 eve.	Uranus sets.....	3 16 mo.
Jupiter rises.....	2 12 mo.	Neptune sets.....	7 35 eve.

## FIRST MAGNITUDE STARS.

H.M.		H.M.	
Antares rises.....	10 33 eve.	Sirius sets.....	10 12 eve.
Regulus in meridian.....	8 34 eve.	Procyon in meridian.....	6 05 eve.
Spica rises.....	6 28 eve.	Aldebaran sets.....	9 58 eve.
Arcturus in meridian.....	0 45 mo.	Algol (2d-4th mag. var.) sets	10 41 eve.
Altair rises.....	11 46 eve.	Capella sets.....	1 51 mo.
Vega rises.....	8 10 eve.	7 stars (cluster) sets.....	9 41 eve.
Deneb rises.....	9 13 eve.	Betelgeuse sets.....	10 45 eve.
Alpheratz rises.....	2 46 mo.	Rigel sets.....	9 11 eve.

## REMARKS.

Mercury is now brightest, setting 1h. 40m. after the sun, and  $24^{\circ} 45' 2''$  north of the west point, or  $12^{\circ} 27' 6''$  north of the sunset point. He is moving slowly eastward among the stars of *Aries*. Mars, with  $\beta$  and  $\zeta$  *Tauri*, nearly form an equilateral triangle. Uranus is almost directly north  $1^{\circ} 11'$  of Regulus. Algol is at minimum brilliancy April 10, 4h. 15m. morning, or 22m. before it rises. Hence, at rising, it will be of the fourth magnitude; also April 13, 1h. 4m. morning, and April 16, 9h. 53m. evening, 39m. before setting.

## JUPITER'S SATELLITES.

I. Begins a transit April 14, 3h. 37m. morning, the shadow passing off of the planet at 4h. 32m. morning; reappears from behind the planet April 15, 2h. 59m. morning.

II. Begins a transit April 19, 3h. 57m. morning.

III. Begins a transit April 17, 3h. 46m. morning.

IV. This satellite happens to be at its greatest western elongation at the time of the beginning of the transit of III.

While observing Mars March 9, 6h. 42m. evening, Washington mean time, we saw a meteor far more brilliant than Mars suddenly flash out in R. A.  $48^{\circ}$ , Dec.  $27^{\circ}$  N. It described an arc of about  $15^{\circ}$  in 3 seconds, extending in a southern direction. It left a beautiful train much the color of Mars, and did not explode or break up.

## Telephone Re-invention Abroad.

A recent report of the proceedings of the French Society for the Encouragement of the National Industry, states that Count du Moncel recently laid before that association an account of a "remarkable improvement" in the telephone devised by MM. Pollard and Garnier, of Cherbourg. The improvement, which is considered as indicating great progress, is the discovery of the fact that the interposition of an induction coil in the telephone circuit materially augments the sound given by the receiving instrument. The credit of this invention is due to Mr. Thomas F. Watson, who patented it in this country on the 5th of December last.

## IMPROVED SCRUBBING MACHINE.

The apparatus herewith illustrated is claimed to be a very efficient contrivance for scrubbing and mopping floors. It is self-acting, the operator having merely to propel it. It heats its own water, projects the same in spray form, works a scrubbing brush, and finally applies a mop or wiping cloth.

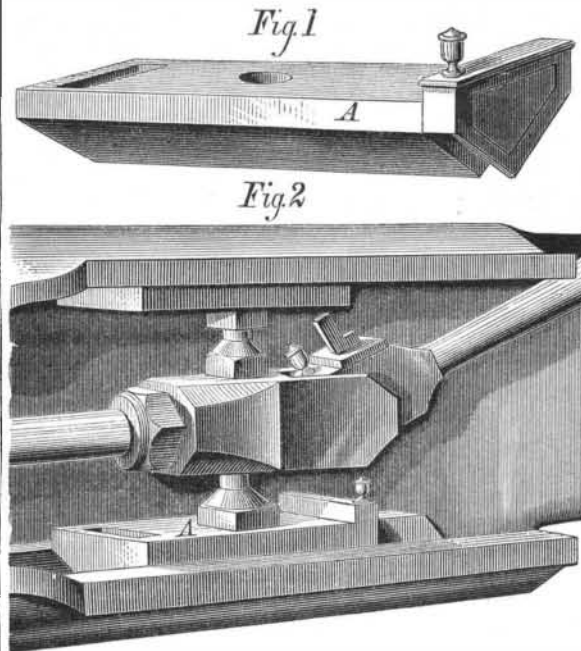
A is a water tank of any desired size, the top of which is closed by a suitable cover and which is mounted on a truck. Underneath is a box, B, in which the lamp or stove for heating the water is placed, the chimney passing through the tank and protruding above at C. At the front end of the frame is the scrubbing brush, to which a quick reciprocating scrubbing motion is imparted by the rock shaft, levers, and other simple mechanism, actuated by a pinion which gears with the wheel, D. This brush is so placed that it receives the entire weight of the front part of the machine. Connected with the forward end of the tank is a horizontal sprinkler, E, in the pipe leading to which is a valve, F, by means of which the supply of water, which escapes in divided form upon the brush, may be regulated. To the handle of the apparatus is secured a clamp for holding mop rags or cloths, as shown. When the machine is set in motion the valve, F, is opened by a nut on the short arm of a vertical rod striking against the shaft, G, as it reciprocates with the brush, and water from the tank is admitted to the sprinkler. A spring closes the valve when the machine is not in motion. A filter, H, serves to remove all dirt from the water as it passes to the supply pipe, and the mop clamp can be adjusted to either side of the handle arms, so as to run close to the side of the floor or surface which is being cleaned. The brush may be of any suitable size, shape, or material.

Patented January 29, 1878. For further particulars address the inventor, Dr. A. F. Stockley, Lone Pine, Inyo county, Cal.

## IMPROVED LUBRICATOR.

We illustrate herewith a new device for oiling engine slides. The oil is distributed to the guides or ways at every stroke in the form of a thin film. The lubrication is constant, and thus friction is reduced, dirt is prevented from remaining in the guides, and it is claimed that from one half to three fourths the oil generally used is saved.

The attachment is represented separate in Fig. 1, and in place at A, Fig. 2. It consists of a chamber which opens on the face and back of the slide, and in which a quantity of cotton waste is placed so as to project beyond the face. An oil receptacle, having a perforated bottom and filling aperture, is fitted to the chamber, with its bottom in contact with the waste. This being closed so as to prevent the entrance



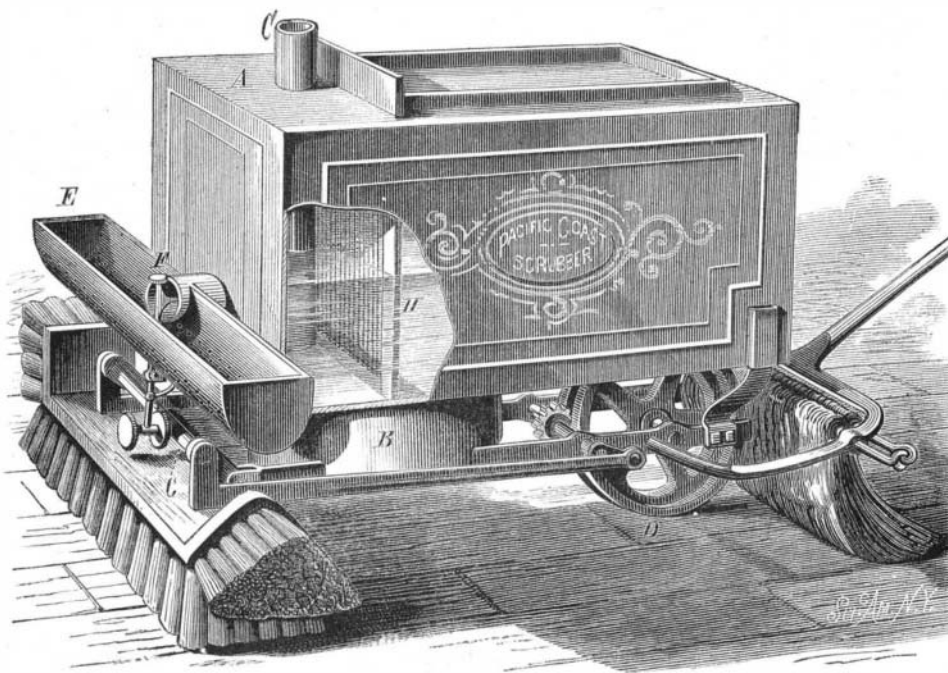
AN IMPROVED LUBRICATOR.

of air, except through the perforated bottom, retains the oil until the waste in contact with the latter becomes sufficiently dry to allow a small quantity of air to enter the receptacle through the perforations, thus enabling a little oil to pass to the waste. It will thus be seen that the exact amount of oil required to lubricate the slide is supplied to the waste, which in turn constantly supplies it to the guides.

We are informed that waste has been used for three months in this lubricator without requiring change, and that the device has run for two weeks without renewal of oil, always keeping the parts cool. Patented through the Scientific American Patent Agency, December 11, 1877. For further particulars relative to sale of rights or of the patent, address the inventors, Messrs. Higgins & Devereux, Box 13, Mantion, R. I.

## Sulphurous Acid a Phylloxera Remedy.

Sulphurous acid, we learn from the *Journal de Genève*, is now being used in Switzerland with much success as a



STOCKLEY'S IMPROVED SCRUBBING MACHINE.

phylloxera destroyer. The gas possesses remarkable powers of diffusion, and permeates the soil with great rapidity. The means used consists simply in a copper reservoir containing some 220 pounds of liquid sulphurous acid, a number of smaller vessels of a capacity of about two quarts each, to the bottom of which perforated tubes are attached, and a sharp rod. The rod is driven into the earth near the vine to a depth of about 20 inches, and into the orifice the tube attached to one of the small vessels, previously filled with the liquid acid, is inserted. The earth is then packed around

the pipe, and the stop cock admitting the liquid into the latter is opened for an instant. The acid escapes into the earth, and diffuses in gaseous form, completely, it is said, destroying all phylloxeras at the roots of the plant. As each small vessel is exhausted it is refilled from the reservoir. The holes are made about a yard apart.

## New Agricultural Inventions.

Mr. J. M. Moore, of Ovilla, Texas, has patented an improved Cotton Hoe, which is twice the length of the ordinary chopping hoe, and which may be adapted to garden work by changing the large blade for a small one.

A novel Churning Apparatus, in which the power is transmitted by connecting rods to the cranks of a churn from an oscillating chair, so that the operator may attend to other occupations while churning, has been invented by Mr. E. P. Conser, of Monticello, Iowa.

A new device for Blowing Insect Powder has been patented by Mr. Michael Mark, of New York city. It consists of a tube in which works a spring-acted piston, and provided with finger and thumb rests for using the blower conveniently by hand.

Mr. D. M. Johnson, of Emerson, Iowa, has invented a new Plow Regulator, for attachment to plow beams to enable the plow to be adjusted to take or leave land, or to run deeper or shallower, without stopping the team. A lever pivoted to the plow beam shifts the point of draught attachment to one side or the other of the beam, raises or lowers it, and is capable of being locked in fixed position.

In an improved Cultivator, invented by Mr. P. J. Ward, of St. Mary's, Ind., the essential features are the means by which the machine is adapted to work over rows of tall plants, the axle being arched, and the tongue carried at a height sufficient to clear the plants. The handles are slanted laterally, so that the plowman may walk by the side of the row. There are also ingenious devices for locking the plow standards and for permitting the latter to swing backward when an obstacle is encountered.

An improved Seed Drill has been invented by Mr. O. N. Skaaraas, of Hale, Wis. At the bottom of the seed box are a number of feed wheels, which distribute the seed, through conductor spouts, to drill tubes cushioned by spiral springs, so as to avoid injury from obstructions. The mechanism is operated by a compound crank shaft and connecting rods, the power being derived as usual from a cogwheel on one of the supporting wheels.

Mr. J. W. Park, of Columbia, Texas, has invented an improved Beehive, which is made with a lower brood department having a bottom groove filled with bar soap, to prevent the entrance of moths. The honey box compartment is supported upon and separate from the brood chamber, and in the upper part of the latter are removable notched strips having comb pieces fitted to them.

## New Process for Copying Tracings.

M. Pellet, of Paris, has recently devised a new process of reproducing drawings made on tracing cloth or transparent paper by the aid of photography, no camera being used. A process of this kind is already in use here which reverses colors, making dark lines appear white on a deep blue surface. M. Pellet's plan effects the opposite, as he obtains dark lines on a white ground, and the outline thus obtained may be shaded or colored by hand afterwards. The process is based on the property possessed by perchloride of iron of being decomposed by light and reduced to the state of protochloride. This last salt is not modified in a solution of prussiate of potash, while the perchloride is immediately colored blue. The paper on which the copy is to be made is sensitized by immersion in a bath of 100 parts water, 10 parts perchloride of iron, and 5 parts oxalic acid. The last may be replaced by an equivalent quantity of several other vegetable acids. If the paper is not sufficiently sized, a little dextrin, isinglass, or other similar matter is added. The paper is then dried in the dark, and may be kept indefinitely, always retaining great sensitiveness.

To reproduce the tracing the latter is placed over a dried sheet of the prepared paper, and a pane of glass over all. In summer, about 30 seconds, and in winter, from 40 to 70 seconds exposure to the sun is sufficient. In the shade, from 4 to 6 minutes, or if the day be dark and overcast, from 15 to 40 minutes may be required. The electric light acts efficiently, and the exposure varies according to the distance and intensity. The sheet, after exposure, is immersed in a bath of prussiate of potash (15 to 18 per cent in water), which immediately colors blue all the parts in which the perchloride remains unaltered. The sheet is then washed in plenty of water and dipped in a bath containing an 8 to 10 per cent solution of hydrochloric acid in water, which removes the protoxide. Washing and drying finish the operation.

A BAR of iron 70 feet long at a temperature of  $32^{\circ}$  Fah., if heated up to  $212^{\circ}$  Fah., expands 1 foot, or measures 71 feet.