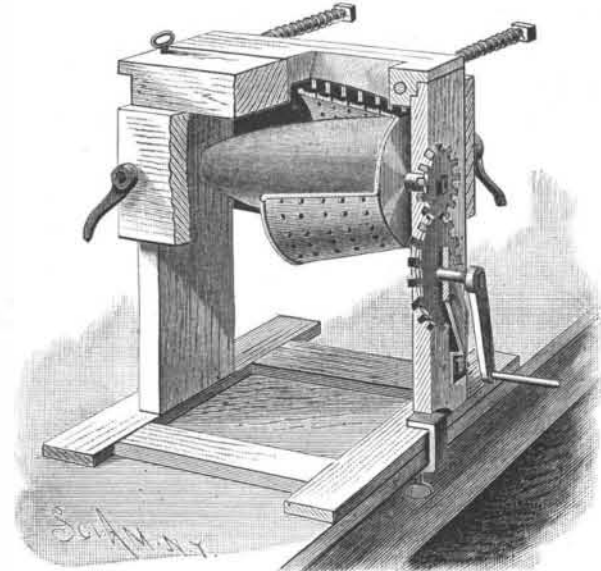


VEGETABLE GRATER.

The body of the grater is a box formed by uniting two vertical end strips by means of upper side strips. Within the box is mounted a shaft carrying a cone-shaped block, to the base of which is secured a grater consisting of a metallic cup-shaped attachment, having either outwardly flaring or cylindrical sides. In the grater are punched holes, the sharpened projections of which extend outward beyond the surface of the grater. To the tops of the vertical strips is secured a sectional cover, one section of which is rigidly connected to the strips, while the other rides upon extending arms and is held against the rigid section by springs, arranged as shown in the engraving. In the movable cover is an opening, and its under side is slightly cut away to accommodate the grater. One of the sections is provided with downwardly extending projections, that prevent

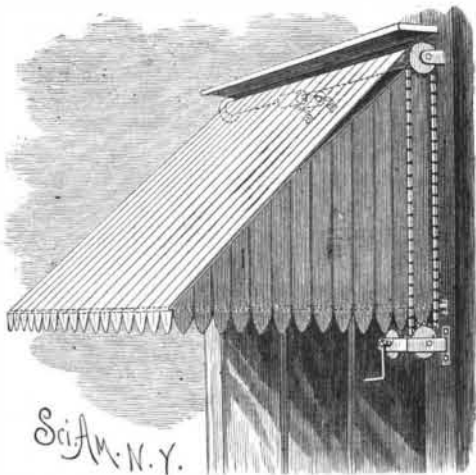
**PLATNER'S VEGETABLE GRATER.**

the entrance of material that would tend to clog the machine. The grater is driven by a crank shaft through suitable gearing. It may be clamped to a table or other support. It is rapid in operation, and can be easily cleaned.

This invention has been patented by Mr. M. D. Platner, of Virginia City, Montana.

DEVICE FOR OPERATING AWNINGS.

By means of the device here illustrated, the awning may be readily raised and lowered, and when raised it

**CHARRON'S DEVICE FOR OPERATING AWNINGS.**

is wound upon a suitable roller, and thereby protected from the weather and prevented from creasing. At each side of the window are attached horizontal brackets carrying a roller provided with a flange at one end and a sprocket wheel at the other. The upper edge of the front section of the awning is attached to the roller, and the lower edge is held to the transverse bar of a frame, whose side bars are pivoted to brackets secured to the building. The side pieces of the awning are held in engagement with the front, and the upper inclined edge of each side piece is provided with an elastic strip, so that the side pieces automatically gather or fold upon themselves as the awning is hoisted up. The transverse roller is guided by friction rollers held in bearings beneath and in engagement with, centrally, the roller. These friction rollers are detachably supported in a horizontal position by the entrance of their carrying frame in sockets attached to the wall above the window. For raising and lowering the awning, beveled gear wheels are journaled in an angular bracket secured to the side of the window frame near the sill. The shaft of one gear carries a sprocket wheel, around which and the sprocket wheel on the roller passes an endless chain. Each gear is provided with an integral post adapted to receive a key or crank. If found desirable, the outer gear may be dispensed with, as it is simply placed in connection with the inner gear for convenience. By turning these gears, it is evident

that the awning may be easily and quickly raised and lowered.

This invention has been patented by Mr. Theophile Charron, of Kankakee, Ill.

IMPROVED HARROW AND PULVERIZER.

The harrow is provided with vertical stationary teeth, between which are arranged revolving wheels, having teeth adapted to pierce clods and pieces of sod. The sides of the triangular frame are made in sections, whose ends are bent at an obtuse angle in opposite directions, to adapt them for attachment to frames in which the wheels revolve. The sides of the main frame are furnished with vertical teeth in the usual way. The teeth of the wheel are made longer than the others, and the bearings of the wheels are placed on the upper side of the frame. As the harrow advances, the greater length of the wheel teeth enables them to pierce clods before the latter come in contact with the two vertical teeth located on either side of the wheels. The radius of the wheels being greater than the length of the vertical teeth, the wheels revolve slowly, so that the clods are practically held nearly stationary while the contiguous vertical teeth advance. The latter thus come in contact with the clods on each side and tear and pulverize them as the revolving teeth pass slowly backward between them. Another reason for placing the bearings of the wheels above the frame is to make the draught of the harrow lighter than it would be if the wheels were smaller. In order to prevent the harrow from operating on the surface of the ground when being drawn to and from the field, each wheel is provided with a protector, consisting of a flexible detachable tire having a series of funnel-shaped pockets, one for each tooth, attached to its inner side. When this protector is applied to the wheels, they serve as ordinary supporting and transporting wheels. The wheels are provided with a limiting flange, which is a ring formed in sections, one for each tooth, which are perforated midway between their ends for the passage of the teeth, the ends being united by bolts and nuts.

This invention has been patented by Mr. Samuel Rothchild, of Pendleton, Oregon.

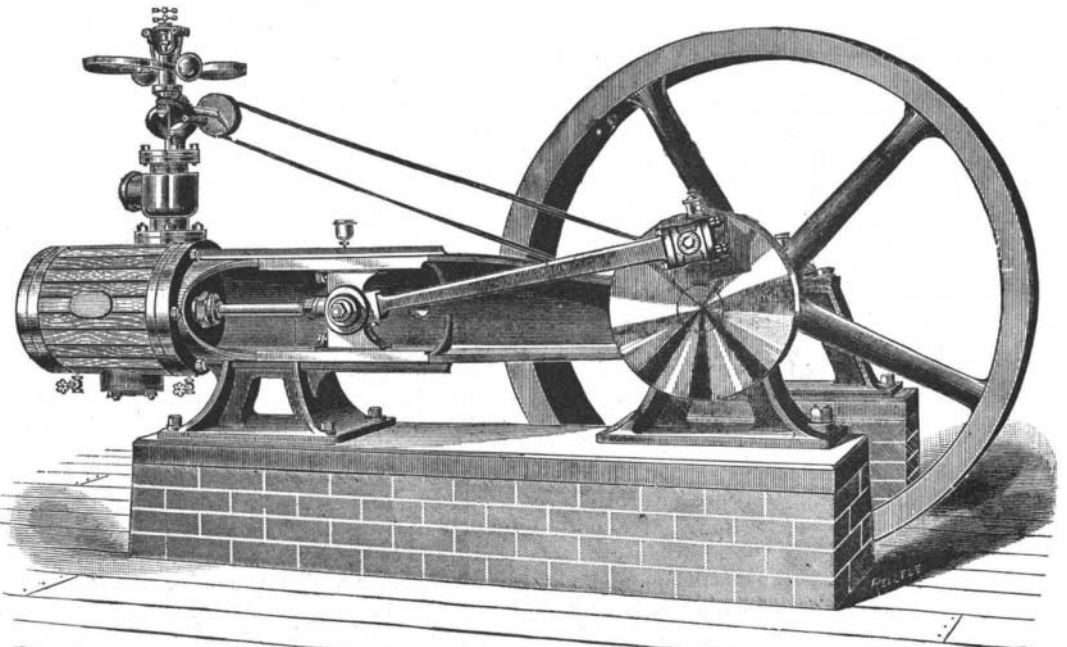
Musk Scented Gnats.

To the list of sources of musk must be added a kind of gnat, order Hemiptera, class Reduvidæ, genus *Amulius* (*Stol.*), which is so common in the bush at times as to fill the air with a musky odor. The source of the odor has hitherto been an enigma, but has at last been traced by Mr. A. Alder, of Caloundra, Queensland, and the insects classed by Mr. Tryon, of the Brisbane Museum.

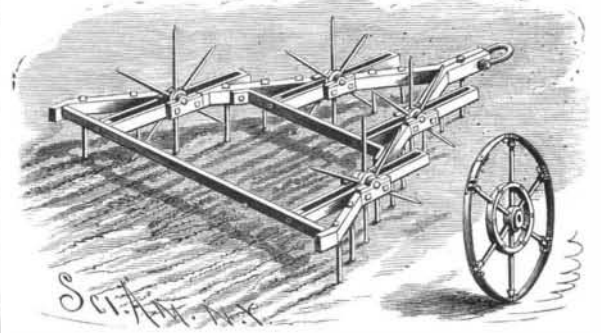
IMPROVED HORIZONTAL STATIONARY ENGINE.

The engine here illustrated is designed especially for driving dynamos for electric lighting and for other uses requiring smooth and steady power, and is better on that account for general power purposes, and is cheaper per horse power than ordinary engines in first cost. All the parts of the engine are well proportioned, the bearings are large and amply provided with lubricating apparatus, and the workmanship and material entering into its construction are excellent. The engine is so designed as to obtain more effective power from a given amount of fuel in proportion to first cost than any engine heretofore introduced. Opportunities for observation of the practical working of the details of the engine have been offered by long practical tests in every day work. These have given good satisfaction, while the engines now in use in various works have proved to be strong, durable, and economical in fuel and repairs.

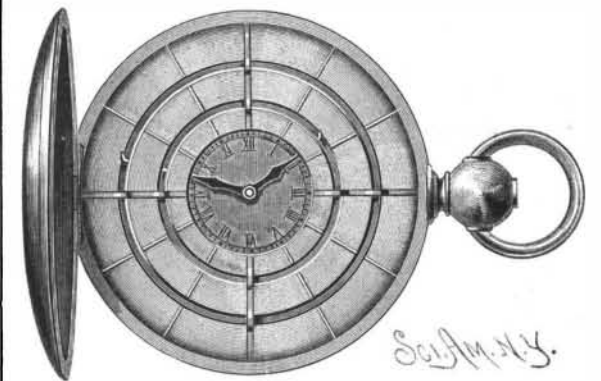
This engine was designed and is manufactured by the Pennsylvania Diamond Drill Co., of Birdsboro, Pa., to whom all communications should be addressed.

**IMPROVED HORIZONTAL STATIONARY ENGINE.****WATCH FOR THE BLIND.**

This watch is so constructed that the time may be told in the dark or by the blind. The works of the watch are covered below the hands by a plate, on which is formed a small dial. Each hand is formed with a knob or projection at its end, and over the hands is placed a concave disk, composed of several concentric annular rings spaced to form annular slots, in which the upwardly projecting knobs of the hands move, so

**ROTHCHILD'S IMPROVED HARROW AND PULVERIZER.**

that they can be felt by the finger through the slots, and their relative position on the dial determined by the sense of touch. The annular plates are united by four radial ribs, formed with upwardly curved bridge pieces to span the slots, so as not to interfere with the movement of the hands. Upon the outer surfaces of the plates are ribs, so that, in all, there are twelve ribs arranged at equal distances apart and marking the hours and five-minute divisions. The face of the watch is closed by a cover, which is a small crystal, through which the dial may be observed. To ascertain the time by the sense of feeling, the fingers are moved around the slots to find the knobs, when their location with reference to each other and to the XII. side of the dial will be found by counting the ribs, which can be easily done, so that with a little practice the hour and minute can be accurately told by this watch in the dark or by a blind person.

**ADAM'S WATCH FOR THE BLIND.**

This invention has been patented by Mr. Samuel F. Adam, of Middletown, Conn.

THE *American Agriculturist* presents to its readers, on a sheet 12x19 in., a beautifully executed picture of the late Henry Ward Beecher. It is made directly from a negative taken by a well-known portrait artist after Mr. Beecher's latest return from Europe, and brings out all the details with a fidelity such as is attained only in this way of making pictures. The distinguished preacher and orator was always a hard worker, and this picture, among the latest of the many that were taken of him, indicates that his force and power remained substantially undiminished to the last.