

RATS.

A sportsman contributes to the London *Farmer's Magazine* an interesting article on rats, from which the following is condensed:—

I have heard some men say rats do not attack game; but that notion is erroneous. In my opinion they do as much mischief as any other vermin in the fields, and will attack young rabbits, leverets, and partridges, whenever they can, particularly just after the fields are cleared of the corn, when their appetites become sharpened.

Rats have frequently been the subject of very interesting description with members of learned societies. For instance, in vol. XI. of the "Trans. Linn. Soc.," 1815, is an interesting description, with engravings, of the genus *Mus*, belonging to the section of pouched rats, by John Vaughan Thompson, Esq., F.L.S. It appears that this anomalous rat is a native of the island of Trinidad, where it is understood not to be very uncommon, although it appears that, during the space of ten years' residence there Mr. Thompson met with only two specimens. He describes it as of the habit and size of the common rat; the nose rather sharper, the ears naked and rounded and of moderate size. The feet have six callous tubercles beneath, are all five-toed, the innermost toes or thumbs, extremely short and small, the whole armed with sharp claws, those on the exterior and interior toes being small in proportion; tail about six inches long, scaly, with a few scattered setose hairs. The two upper teeth are placed without the *rietas* or opening of the mouth, which is not larger than to permit a grain of Indian corn to pass through it. The cheek pouches are formed by a duplicate of the common integuments, open below, extending from the base of the upper teeth to the throat and as high as the eye and ear. These cavities are lined throughout with scattered whitish hairs, and formed in the same manner as the abdominal pouch of the *Didelphis*, and not at all in the way described by Buffon of the hamster (*Mus cricetus*) and the other pouched rats hitherto discovered. The body is covered with fine lanceolate spines, declining toward the throat and belly into a coarse setose hair, and everywhere intermixed with a finer sort of hair. The whole of the upper parts of this rat are of a purple-brown color; the lower part of the cheeks, throat, inside of the limbs, belly, and under-half of the tail are white; and the upper half of the tail is nearly black.

It appears that the habits of this remarkable rat are singular and curious. Where they are numerous, they do incalculable mischief in barns and granaries, when, not content with what they can eat on the spot, they stow away and carry off in their cheek pouches quantities of grain, which they deposit in their retreat, for "hard times," or when food is not so easily procured.

In volume VII. of the "Trans. Linn. Soc.," 1804, is a description of a monster species of rat, a native of the East Indies, by Capt. Thomas Hardwick, F.L.S. It is, however, the same species as that mentioned by Pennant in his "History of Quadrupeds." The description in the "Trans. Linn. Soc." is accompanied by a very good engraving, in full-sized figure, of this peculiar animal, which is the largest of the known species. It is, however, not exclusively belonging to the coast of Malabar, but is better known in natural history as *Mus giganteus*. The weight of the rat from which the drawing was made was 2 lbs. 11½ oz. Its total length 26½ inches, of which the tail measured, from root to tip, 13 inches. The specimen described was a female; the male grows to a larger size, and weighing 3 lbs. and upward. This species is found in many places on the coast of Coromandel, in Mysore, and in several parts of Bengal between Calcutta and Hurdwar. It is partial to dry situations, and seldom found far from the habitations of man. The low caste Hindoos eat the flesh of this rat with much relish. It is one of the most mischievous of the whole of the rat species; it burrows to a great depth, and will in this way force an entry under the foundations of granaries and storehouses. Mud or unburnt brick-walls prove no security against its intrusions; and it commonly perforates such buildings in all directions. In gardens it is equally destructive, rooting and burrowing after the seeds of all leguminous plants sown within its haunts. Cucurbitaceous plants and fruits also suffer by its depredations. And when

grain and vegetables are not to be had, it will attack poultry.

The bite of this animal is dangerous; indeed Capt. Hardwick mentions an instance of hydrophobia ensuing where a European officer in the Hon. East India Company Artillery, while stationed in Futteghur, died under a confirmed hydrophobia, in about twelve days after having been bitten by one of these rats.

Rats have sometimes been the subject of a special treatise. A work was published in the year 1768, called "The Universal Directory for taking alive and destroying rats, and all other kinds of four-footed and winged vermin, in a method hitherto unattempted; calculated for the use of the gentleman, the farmer, and the warrener; by Robert Smith, Rat catcher to the Princess Amelia!" Thus we find that a rat-catcher was formerly a distinguished personage.

The author of the work alluded to first enters upon a long discussion on the Norway rat, which, he says, was originally brought from that country to England in ships trading for timber; he also states that this rat is sometimes erroneously termed the Hanover rat. He says there are few buildings either in town or country that are not pestered with them,

We suggest that in order to discover the places where they intrude, some fine sand should be sifted about, by which means their foot marks may be easily traced. This, as we have often heard, is an infallible method by which to betray all sorts of four-footed vermin, and indeed many a two-footed thief has been detected in the same manner. These Norway rats are very prolific, bringing forth twelve young ones at a time, and breeding three or four times in the course of a year.

We have then another book on the subject of rat catching, published in the year 1789, called "Directions for taking alive or destroying rats and mice, either in houses, ships, mills, farms, &c., by a method hitherto unattempted;" by John Middleton, late of Walthamstow. Printed for the author and sold by him at Stratford Green, Essex. This is the best of all the old treatises; there is no gammon about it. Though now long out of print there is no modern treatise on rat catching to be compared with it. After a well-written introduction, the author says:—"One doe rat will breed about three times in a summer, and seldom bring forth less than twelve young ones at a litter. I have taken fifteen young ones from a doe rat, and have found several does with the same number."

He does not approve of poisoning rats in dwelling houses, because, in addition to the danger incurred by laying poisoned food about where there are children, dogs, poultry or other tame creatures, there is the unendurable stench, for several weeks, of dead putrid rats, which lie under floors and between walls, to the disgust and annoyance of every inmate of the house. He recommends the use of the hutch trap as by far the better means of extirpating the premises of these vermin. It should be set in the following manner:—"Set the back part of the trap close to the wall, so that the rats cannot run behind it, and about eighteen inches from the hole or run, where they come in at; then tie or confine the falls of the trap so that it cannot go down; and leaving them about half up, or rather higher, so that the rats may pass under the flap with ease; then take two small bundles of clean straw, tie them up tight, and place one at each end of the trap; this prevents their having any notion that it is a trap; let the bundles of straw be about two feet long and as big as a small wheat sheaf, setting them aslant against the wall and before the mouth of the traps. Never set two traps in the same quarter; by so doing you prevent their coming to either. Never remove a trap after the rats have once taken to it, for that makes them shy. Rats are more likely to enter freely when the traps have contracted a smell from the dung. They will seldom enter a new trap until they have been accustomed to it a few days. Hence appears the impropriety of washing the traps as is frequently practiced by some people, in order to take off the scent. A trap should never be washed.

If it be intended to hunt the rats taken alive, they must be put into a store cage; but keep them out of the hearing of those which are not caught. It is a rule with rat catchers to look to their traps very frequently; and when the rats are very numerous, the trapper sits up all night to attend to his traps; he is

then within hearing, and directly he hears a trap sprung, goes to it and takes out the rats, or turns them into the store cage.

The next day you may fearlessly put your hand into the store cage and take the rats out, one at a time, and turn them to your dogs, as they will not make the least attempt to bite when they have been kept in the cage all night; it greatly terrifies them, and particularly if they see dogs or people about them, when they always endeavor to screen and hide themselves. There is no occasion to dress your hands with any scent or dung; such is a fallacious notion and of no use. When you take the rats out of the cage lift them by the tail and turn them among the dogs. The best time for taking rats is the first two or three quiet hours of the night, after the good people are gone to bed. It is always difficult to poison rats in barns, corn stacks and granaries, because they live so well that they will seldom be tempted to eat the poisoned bait. By far the better plan is to trap them, and where the animals are numerous the hutch traps are the best; ten and twenty times more may be taken in these than in the iron traps, which catch only one at a time, whereas some of the others take ten or a dozen at a time. For catching water rats the steel traps are to be preferred; these should be set in the earth near their holes, being placed in cavities dug out so as to fit the trap exactly, and bring it level with the surface, covering it over lightly with dust or grass. The oils used by rat catchers for the purpose of mixing with the baits and enticing the rats to the traps, are oil of caraway and oil of rhodium, sometimes both mixed together; rats are very fond of the scent of these oils.

Rats feed, frolic and fatten in the dark; they prefer night to day, and are so wary of the approach of human form that if we enter a barn or granary where hundreds dwell, none will be seen, unless disturbed or driven from their hiding places.

Embalming the Dead.

A Washington correspondent gives the following account of the process of embalming:—

The body is placed on an inclined platform, the mouth, ears, nose, &c., are stopped with cotton; if wounded, cotton is put in the wound, and a plaster is put on; an incision is made in the wrist, the attachment is made from an air pump, and fluid is ejected into the arteries. The wound is then sewed up and the body is hoisted to dry. To save the eyes from sinking in, wax is put under the eyelids. The hair is found to come out very easy, but after the embalming it could not be removed. The bodies take on an average about seven quarts. There were some eight bodies on hand; some had been there thirty days. The operators say that in four months the body will become solidified like marble, but no change has yet been had to prove it. Colonel Baker's body, on arriving at San Francisco, was in an advanced state of decomposition. Dr. Holmes, late of Williamsburg, Long Island, is the oldest in the business here, and I am informed he has made \$30,000. Messrs. Brown & Alexander are trying to get a bill through Congress for the exclusive right to embalm bodies, and to have Congress authorize a corps of embalmers for each division. The charges are \$56 for an officer and \$25 for a private, and I must say the bodies are as life-like as if they were asleep.

THE HOG CROP.—The exports of cut meats to all foreign countries from Boston, New York, Philadelphia, Portland and Baltimore, from November, 1, 1861, to April 16, 1862, and the corresponding time the previous season, were as follows:—

Years.	Pounds.
1860-61.....	57,682,202
1861-62.....	151,376,325

Increase this season..... 93,688,123

The exports of lard for the corresponding periods were—

Years.	Pounds.
1860-61.....	23,443,750
1861-62.....	81,411,550

Increase this season..... 57,967,800

THE Commercial Bank of Canada has obtained a verdict for \$1,100,000 against the Great Western Railway Company, for money furnished for the completion of the Detroit and Milwaukie Railway, it being held that the Great Western Company was the real creditor in the transaction.

### Improved Rotary Machine for Sharpening Grindstones and Turning them True.

Grindstones are seldom homogeneous throughout, but are softer in some places than in others, and they are consequently worn by use out of circular form, which renders it necessary to turn them down occasionally. This is usually done with a hardened steel rod while the stone is dry. This consumes a great deal of power, and fills the air with a sharp dust exceedingly injurious to the moving parts of adjacent machinery. It is also the practice to hack the faces of grindstones with sharp hatchets, in order to make them grind more rapidly.

The accompanying engraving illustrates an apparatus invented by John F. Schuyler, of Philadelphia, for keeping grindstones constantly true and sharp, which operates while the stone is wet and in use, thus avoiding all dust and all interruption of the work. It consists of a wheel with sharp and hard steel points, secured between two india-rubber disks on the same axle, so connected with mechanism that it may be caused to traverse across the face of the stone whenever its use is required. The india-rubber disks are a little larger than the cutting wheel, and as they are pressed against the grindstone they are caused to rotate, thus turning the cutting wheel, while at the same time they yield sufficiently to allow the points to enter the face of the stone.

The engraving represents one of the washers removed, so as to show the cutting wheel. A is the cutting wheel, B the washer beyond it, C the farther side of the case, which has the bearing of the shaft of the wheel, A, and O the top of the case. The apparatus is secured to the box, M, of the grindstone, L, by means of the clamp screw, N, with the points of the teeth just in contact with the face of the stone in the highest parts. The cutting wheel is hung in a carriage, D, which slides on ways, E, along which it is made to traverse back and forth by means of the hand-wheel, K, which carries upon the lower end of its shaft the pinion, F, meshing into the rack, G. The points of the wheel, A, cut down the face of the stone in its highest parts, and at the same time give it that roughened surface which is best for grinding. As the stone is cut away, the wheel, A, is fed forward by the screw, I.

This apparatus has been in daily use for some time in the largest saw factories and machine shops of Philadelphia and other cities, and is found to work satisfactorily.

The patent for this invention was granted June 5, 1860, and it has been assigned to George C. Howard, engineer and machinist and manufacturer of machinists' and tools, who may be addressed for further information in relation to it, at Nos. 13, 15 and 17 South Eighteenth street, Philadelphia.

#### Improved Vibrating Grate.

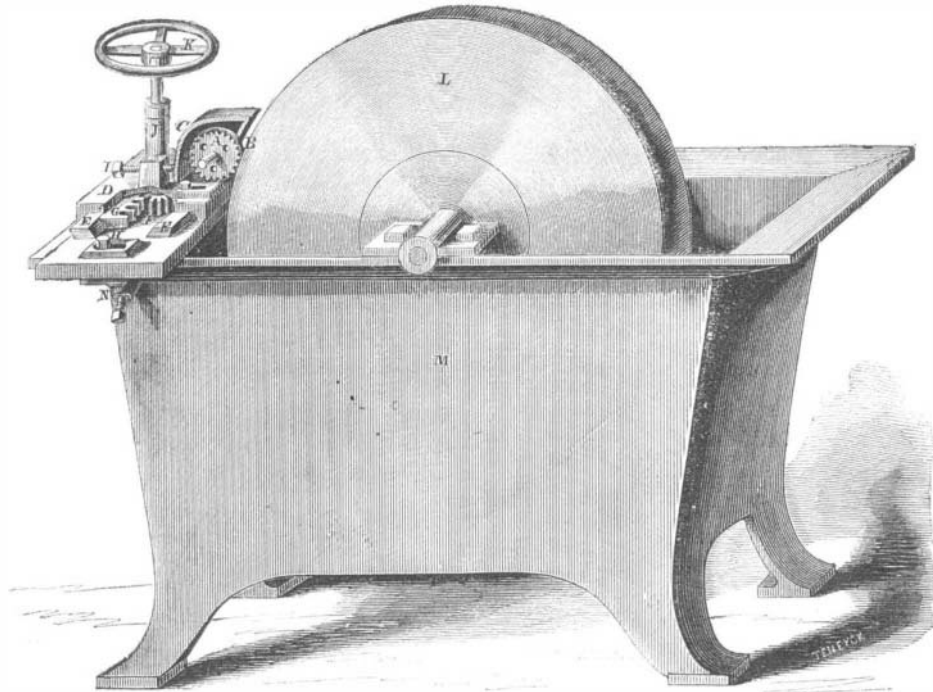
The grate here illustrated is designed to facilitate the shaking of the coals while they are in the grate and on fire, so as to sift the ashes from them; and certain peculiarities are introduced in its structure to prevent it from being warped by the intense heat to which grates are exposed.

The engraving represents the grate as turned up in a vertical position, the moving parts not being visible when it is viewed from above. The frame, A A, formed of a single piece of cast iron, is set in the brickwork of the fireplace in a horizontal position, so that the side which is turned toward the spectator in the engraving will be the lower side. The grate is formed in two parts, which are attached to the frame by the vibrating levers, B B. In one of these levers slots, c c, are formed for the entrance of the jaws of

variations of temperature, without warping or bending the frame from its normal form.

The inventor states that this grate has been thoroughly tried, and that it gives the most perfect satisfaction. The ashes are readily sifted from the coal, either before the fire is kindled or while it is burning, and the notches in the frame effectually accomplish the purpose for which they are designed.

The patent for this invention was granted through the Scientific American Patent Agency, March, 25, 1862, and further information in relation to it may be obtained by addressing the inventor, Albert Brown, at Troy, N. Y.



SCHUYLER'S ROTARY MACHINE FOR SHARPENING GRINDSTONES AND TURNING THEM TRUE.

the wrench, D, by means of which the levers may be vibrated, and thus a reciprocating motion may be imparted to the two parts of the grate whenever it is desired to shake the coal in order to sift the ashes from out the fire.

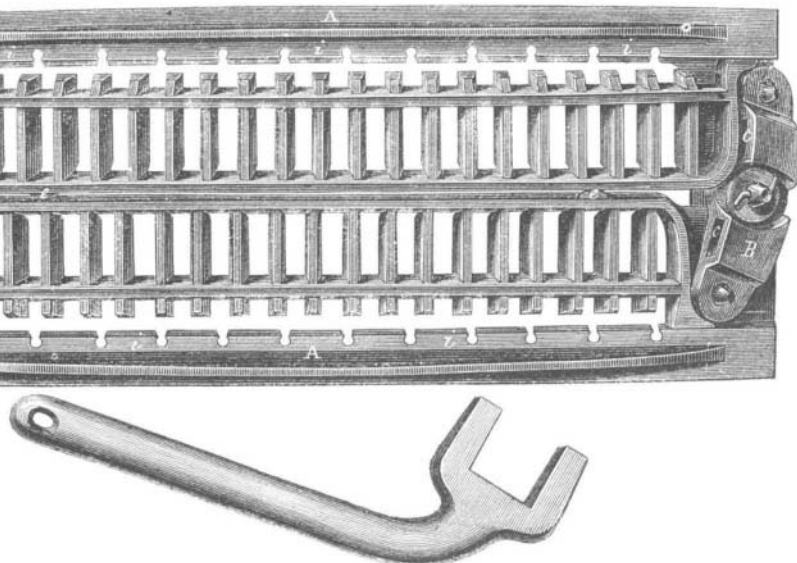
The pivot pins by which the levers are attached to the frame are cast upon the frame, and the pins by which the two parts of the grate are attached to the levers are cast upon those parts, so that all of the apparatus, except the keys through the pins at the fulcrum of the levers, are of cast iron, and but few pieces

utes, with the same engine, to be placed on board of a steamer. It would have taken 30 horses or 300 men, one hour's labor, to have moved this boiler the same distance. It appears to us that an engine of this character would be very useful and would find plenty of employment in any of our large American cities, in drawing blocks of stone, heavy castings, &c. We lately saw a huge 10-inch navy gun lying on the pavement in Market street, Philadelphia, about a mile from the place where it was to be taken, and it had been thus lying for several days owing to the difficulty experienced in drawing it through the city by a long train of mules and horses. A single traction steam engine of the power of the one used in Glasgow, could have drawn three such guns the distance required in half an hour. We trust this important subject will receive the general attention which it deserves.

#### Ludlow's Valve.

The inventor of this valve informs us, in a note, that the spring, though desirable is not absolutely essential when the valve closes upward, as we stated in our description, on page 360 of the current volume. Hence the valve will work even if the spring should be broken.

He says also that a long stem may be dispensed with by passing the stem through the gate and wedge.



BROWN'S VIBRATING GRATE.

of iron are employed. To secure a rectilinear motion to the two parts of the grate, these parts are confined by lugs, e e, cast upon their adjacent edges; and the pivot holes in the ends of the levers are elongated to permit the vibration of the levers, notwithstanding the motion of the grate is thus circumscribed.

The longitudinal plates, A A, of the framing have, at the inner edges of their upper sides, ribs—reversible in the engraving—and these ribs are caught up at intervals by the notches, i i, which permit the edges of the plates to expand to suit all the

THE banks of New Orleans paid off their depositors as far as practicable in view of the surrender of that city, those who were entitled to specie receiving it, and those who had deposited Confederate scrip receiving their pay in that currency, the remainder of the coin having been sent with their important books and papers to Columbus, situated at the head of navigation on the Tombigbee river, 140 miles northeast of Jackson.