Spiders and Ants—Island of St. Thomas.

A large ground spider (*Lycosa*) is very abundant in the island, inhabiting a hole in the ground about six inches in depth and from half an inch to an inch in diameter, and with a right angled turn at the bottom to form a resting chamber for the spider. Some negro boys dug the spiders out for me. They said that their bite was poisonous, and that they fed on lizards, leaving their holes at night to search for them.

The boys soon grubbed one out with a knife, a great heavy venomous-looking brute about three inches across. It bit savagely at my forceps. The holes of these spiders were so common that on one tolerably clear patch of about an acre in extent they were dotted over the entire area at about one or two feet distance from one another. I noticed the holes at once, and was astonished when the boys told me they were spiders' holes.

A species of white ant (*Termite*) is very common, which makes large globular nests as much as two feet in diameter, and which are perched high up in the fork of a tree. The nests are made of a hard brown comb. From the bottom of the tree covered galleries, about half an inch in breadth, lead up on the surface of the bark to the nest, looking like long narrow brown streaks upon the trunk of the tree. The galleries usually follow a somewhat irregular course up the trunk to the nest, reminding one of the curious deviations which are always to be seen in footpaths cut out by people walking across fields, in their endeavors to go straight from one point to another. The galleries, or rather tubular ways, for they have bottoms to them, are made of the same tough brown substance as the nests, and are cemented firmly to the bark. Though they are so broad in order to allow numerous ants to pass and repass, they are only high enough for the ants to walk under. I broke one of these galleries, and a number of soldier termites came out and began biting my hands, hardly making themselves felt, but as brave as if they had a sting. I had to break a considerable length of the gallery before I got to any of the working termites, as they had retired from the scene of danger.

A species of peripatus is found in St. Thomas, but I did not succeed in meeting with any. An agouti, a species of rodent (*Dasyprocta*) occurs in the island, and Mr. Wyman told me that it was common in the gullies near his sugar plantation.—*H. N. Moseley, "Notes by a Naturalist."*

THE CYCLODES.

The cyclodes are so called on account of their teeth, the crown of which is rounded, and which reminds of the sharp and cutting teeth of other reptiles that belong to the same class. The cyclodes have a large round trunk, which diminishes regularly from the neck to the extremity of the tail. The tail and body form one piece. The snout is blunt and the tongue is flat, is covered with scales, and has the shape of a lance, with an incision at the end. The eyes are oval and oblique, and are behind the mouth. The neck is very short and narrow. The body is covered with smooth scales arranged like a coat of mail. The claws are small in proportion to the size of the body. The fingers are short, plump, and nearly cylindrical. Three species of cyclodes are found in New Holland—the cyclode of Casnarina, the black and yellow cyclode, and the cyclode of Boddaert.

The giant skink, or the cyclode of Boddaert, is shown in the engraving. It has a more elongated head than the other two species. The upper part of the body is marked with transverse alternating fawn colored and brown stripes. Sometimes these stripes pass down the sides, when the brown or black ones are covered with large yellow spots. Back of the eyes there is a dark stripe which extends as far as the shoulders. In some of the animals the top of the head is reddish, while in others it has a black border. This species attains a length of about fifteen inches.

Like most of the skink family it is very slow in its movements and will lie for hours perfectly immovable, and generally prefers warm and obscure places. While walking the belly drags along the earth, for the legs are short and too feeble to support the body. It lives on pulpy fruit, small animals, and young birds.—*La Nature.*

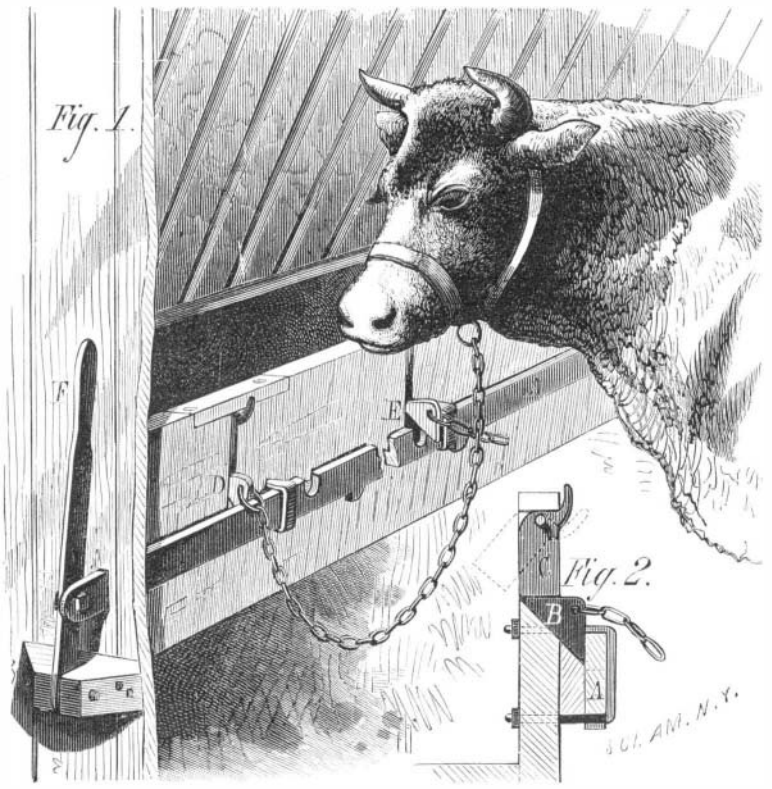
FASTENING AND RELEASING DEVICE FOR CATTLE STALLS.

The practical value of inventions of the class represented in the accompanying engraving can scarcely be overestimated. The frequency of fires and accidents which imperil cattle and horses imprisoned in stalls, has rendered something of this nature an absolute necessity, and its convenience in every day use is worthy of consideration.

The front board of the troughs, or the head walls of a series of stalls, are all arranged in line, and a horizontal continuous bar, A, extends through all of the stalls, and is supported by staples or keepers, and provided with a stop pin which limits its motion. In the headwall, or in the front of the trough in each stall, there is a vertical recess having an inclined bottom running out into the stall. In the upper part of this recess is pivoted a gravity catch or detent, C, which extends downward into the recess just far enough to leave a triangular chamber for receiving the triangular bit, B, which is attached to the end of a chain or rope about the animal's neck. This arrangement is clearly shown in Fig. 2. It will be noticed that the bar, A, extends along in front of the recess which contains the bit, B, and in conjunction with the gravity catch retains the bit.

In the bar, A, there are notches corresponding in position with the recesses in the troughs, and at one end of the bar there is a lever, F, by which it may be moved longitudinally.

There are two ways of releasing the animals. If only a portion are to be released, or if it is desired to release them separately, it may be done by throwing up the gravity catch as shown in dotted lines in Fig. 2. When it is desired to loosen all of the animals as quickly as possible, as in a case of fire, the bar, A, is moved longitudinally by means of the lever, F, bringing the notches in the bar opposite the bits, B, as shown at E (Fig. 1), permitting all of the animals to escape simultaneously.



WATTERS' FASTENING AND RELEASING DEVICE.

This device has met with the approval of farmers' clubs and farmers who have examined and tested it. Further information may be obtained from Mr. James D. Watters, of Bel Air, Md.

Experiments in Cross-Breeding Plants.

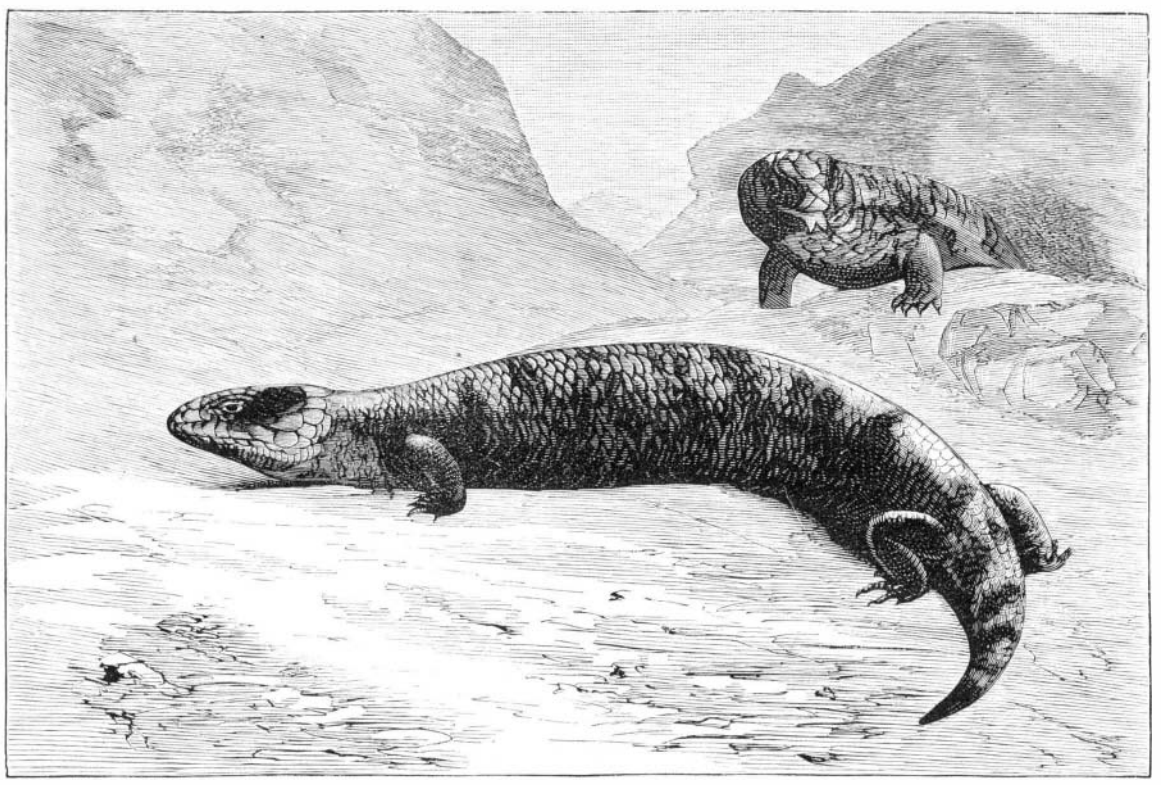
Professor W. J. Beal, desirous of testing the accuracy of some of the statements in Darwin's work, "The Effects of Cross and Self Fertilization of Plants," has been making some experiments, the results of which he records in the *American Journal of Science and Arts.* His first experiments were with Indian corn. Yellow dent corn was obtained from two men in different parts of Michigan. In one case the corn had been kept ten years or more on the same farm, and in the other instance fifteen years or more on the same farm. In both cases the corn was much alike. The two lots were planted in alternate rows in a plat by itself. The tops of one set of rows were all cut off, thus securing a perfect cross on those stalks. Seed from this cross was saved and planted to compare with corn not so crossed. The yield from the crossed seed exceeded the yield of that not crossed, as 153 exceeds 100.

The next experiment was with black wax beans, a variety much cultivated for the purpose of supplying an early crop, and a kind that may be eaten, pod and all, while young. Eight rows were planted, alternately old and crossed stock, and fifteen beans planted in each of the rows. This was on May 31, 1878. On the 22d of July the pods on the two lots of plants were about alike in size, but those fit for cooking numbered 108 on the old stock, and 353 on the crossed; a difference of over three to one in favor of the crossed stock. On August 9th the pods fit for cooking, or past that condition, were 883 on the old stalk and 1,048 on the crossed. On or before the 16th of September all were harvested. The total number of pods was found to be, on the old stock 818 and on the crossed stock 1,859. The beans of the old stock weighed 29·77 ounces, while those of the crossed stocked weighed 70·33 ounces, or nearly in the proportion of 100 to 236. Six lots of fifty beans each were taken at random from the old stock, weighed, and the average for fifty found to be 269⅔ grains. A like experiment with the crossed stock gave an average of 213⅛ grains. The average weight of an equal number of beans from each stock was nearly as 100 to 79 in favor of the old stock.

Poisonous Properties of Laburnum.

The laburnum (*L. vulgare*), a small ornamental leguminous tree very common in our gardens under the name of "golden chain," is quite a favorite with both young and old on account of its being an early bloomer, as well as because its flowers are very pretty.

A writer in the *Gardener's Chronicle* calls attention to the fact that the seeds of this plant act so violently as an emetic that they are justly deemed poisonous, but it seems very little known that all the parts of this tree—leaves, flower pods, and even the bark and roots—are highly dangerous and contain the *cytisin* discovered by Husemann and Marne in 1864. A dose of 0·03 of a gramme injected under the skin is sufficient to cause the instantaneous death of a dog or a cat. Dr. Christison was the first who observed the fatal poisoning of a man by cytisin, and more than a hundred cases of poisoning by this alkaloid, of which the majority were fatal, have been recorded in medical literature. Children particularly, who had eaten of the pods or seeds of laburnum (ten seeds kill a child), but also adults who by mistake had taken flowers of this plant instead of false acacia to prepare a tea, were dangerously affected. The symptoms of this kind of poisoning are not at all characteristic, and unfortunately no antidote is as yet known for it.



CYCLODE OF BODDAERT, AT THE JARDIN DES PLANTES, PARIS.

Japanese Cement.

Mix the best powdered rice with a little cold water, then gradually add boiling water until a proper consistence is acquired, being careful to keep it well stirred all the time; lastly, it must be boiled for one minute in a clean saucepan. This glue is beautifully white and almost transparent, for which reason it is well adapted for fancy paper work, which requires a strong and colorless cement.