

descended from the bushes and crawled along by the log to the rabbit. When the moccasin had the prey about half way down its throat the gentleman approached, when the snake suddenly disgorged the rabbit, and, making a noise like a shrill whistle, a number of small moccasins quickly ran out from under the log, entered the snake's mouth, and she rapidly crawled away. It would seem, therefore, that the moccasin used this means for protecting her young. The rattler and copperhead are also supposed to resort to this habit when alarmed.

Perhaps one of the most beautiful snakes of the United States is the harlequin (Elaps fulvus). This snake has permanently erect poison fangs, is venomous but not fatal, and of an extremely mild disposition. Its coloring is exceedingly rich and beautiful, being red, with seventeen broad black bands bordered with yellow. The harlequin is found from Virginia to Arkansas, while four other species inhabit Florida and Texas. They spend most of their time underground, often being turned up by field workers, and seem to have a particular fondness for sweet potato patches.

The black snake (Bascanion constrictor) is of a beautiful steel blue color. It is wild and untamable, and particularly bold during the breeding season—very often going out of its way to attack passersby, and will sometimes chase an intruder for quite a distance. The black snake is a powerful foe of the rattler, who, being of a sluggish disposition, is easily overcome and squeezed to death. This snake is a great climber and preys upon birds in their nests, seeming to prefer the cat bird and red wing, often penetrating thickets in search of them. This reptile is an inhabitant of the region east of the Rocky Mountains, where it is a very familiar form, always in districts where there is water.

The coachwhip (Bascanion flagelliformis) is a long, slender form of the Gulf States, which has been vested with remarkable powers by the Indians on account of its rapid movements, and by them has been made the subject of many legends, which are still believed by some, particularly the negroes, who assert that the snake has the power of cutting its antagonist in twain, and can take its tail into its mouth and roll along the ground like a hoop. There is a story current among the negroes that a little boy who was playing in a field one day was attacked by one of these snakes, which lashed his limbs just above the ankles, entirely cutting off both feet. This is, of course, a myth. The species inhabits the Southern States as far west as the Mississippi River.

The Ophibolus triangulus, or milksnake, is found from Canada to Virginia; also bears the name of thunder and lightning snake, chicken snake, and house snake; the latter as it often frequents cellars and out-houses, where it preys upon mice and other small vermin. It also feeds upon snakes and lizards. The

milksnake is very graceful in its movements and reaches a length of four feet. Its disposition is exceedingly pugnacious, which trait it exhibits when very young.

A more Southern species and nearly related to the milksnake is Ophibolus getulus, or chainsnake. This, like most of the Southern snakes, is a very beautiful reptile, being of an intense black ornamented by a series of narrow white rings arranged one after another in the form of a chain, whence its name. The negroes hold it in high respect, calling it the king of snakes, from the fact that it is the deadly foe of the rattlesnake. The chainsnake lives on lizards and small birds, as well as weaker members of its own species. The hognose or blowing adder is a large, unsightly snake found in the Eastern United States, but is perfectly harmless, spending most of its time basking in the sun. When one meets it, it does not try to escape, but flattens out its head and body and seems all ready to strike. This it rarely does; but should it strike, it can do no harm, being non-poisonous.

A very active but a very timid snake is the pine or bull snake, deriving its name from its wonderful billowing note, much like that of a bull, produced by filling its body with air, which it noisily expels. This snake ranges east of the Mississippi River and south of the Ohio. It burrows holes in the ground into which it rapidly retreats when approached and emits a very sickening odor, thought to be a sort of defense. The odor is so sickening that one approaching the snake is very apt to stop for a moment to find out what it is, thus giving the snake time to retreat.

The water snake found in the Eastern United States is a most harmless, inoffensive creature, found almost always in meadows near pools and streams. It is often seen around watercourses, hanging from the branches of trees over the streams, into which they rapidly drop when approached. A water snake, having thus taken to a stream, was observed to swim quite a long distance, keeping its head well out of water, when suddenly it opened its mouth and a number of little water snakes ran into it.

A very beautiful snake is the green Leptophis aestivus, which is very common in the South. It is of a brilliant green color and a perfect mimic of a vine—often surprising one by starting up from among the leaves of a vine and darting away. It has a habit of coiling in birds' nests, but is perfectly harmless and, like our common green snake of the North, is easily tamed.

The Virginia striatula, which is found in the South of Virginia and Texas, is a very pretty little snake, but is very modest and retiring. Its back is a beautiful reddish brown and its under surface salmon colored; but we are not often favored with a view of this pretty reptile, as it is nearly always hidden away under some log or old fallen tree or pile of dead leaves.

The most familiar form of all is the garter-snake, a non-poisonous reptile, of which the United States con-

tains ten species. This snake is the first to crawl out in early spring, and the number found around streams at this time is remarkable. At this season of the year they are always hungry, and one snake has been known to eat three adult toads within an hour. These snakes are perfectly harmless and easily tamed, so that they will even feed from the hand.

Lithium.

Recent researches on metallic lithium have shown that this metal cannot be distilled in either hydrogen or nitrogen gases, vigorous combination occurring in both cases. The metals of the alkaline earths would appear to behave similarly; so that if it should be necessary to heat these substances in an indifferent gas, argon or helium must be employed. In a recent number of the Comptes Rendus M. Moissan shows that if pure calcium be heated in hydrogen the metal takes fire and burns energetically, forming the hydride CaH₂, a transparent crystalline substance which is stable at a high temperature. It behaves as a strong reducing agent and is violently decomposed by cold water, giving off one-seventh of its weight of pure hydrogen gas. It differs from the corresponding lithium hydride in that nitrogen is without action upon it at a red heat.

The Current Supplement.

The current SUPPLEMENT, No. 1194, is commenced with an article entitled "Visit of the German Emperor to the Holy Land," with illustrations and sectional view of the imperial yacht "Hohenzollern," used by the Emperor on his tour, with views of the Holy Sepulcher, the Golden Gate, and views in the sacred city. "The Progress of Electro-Metallurgy in 1897" is an important paper. "The New Prison of Fresnes" describes new prisons which are to take the place of the crowded and unsanitary penal institution in the French metropolis. "Artists' Colors" is a paper giving a quantity of out of the way information. "The Li-quefaction of Gases" is a fully illustrated article, describing many interesting experiments. "The Chemical Purification of Potable Water" is an article on the new type of filter. Prof. Brabrook's article on "Anthropology" is continued.

Contents.

(Illustrated articles are marked with an asterisk.)
Airship experiments, govern- 326
ment aid for..... 326
Books, new..... 333
Crane, steam locomotive at the 325
Washington Navy Yard*..... 325
Engine, four-coupled express 324
for the Great Northern
Railway, England*..... 324
Fact and fancy..... 322
Globe-holder, a convenient*..... 324
Inventions recently patented..... 332
Lithium..... 322
Locomotive, model, handsome*..... 325
Locomotives, American and
English, boiler capacity in..... 322
Naval architects, meeting of the
Society of..... 323
Observatory of Paris, the*..... 321, 327
Patent and trade mark laws of
the United States, commis-
sion to revise the..... 323
Photography, color, at Chicago
University..... 326
Science notes..... 327
Sleds, a wheeled attachment for* 324
Snakes, common, some of our*..... 331
Steamships for the Atlantic ser-
vice, giant..... 322
Supplement, current..... 332
Tesla's apparatus for controlling
vessels from land*..... 326
Transmission of power through
the air without wire..... 330
Water supply, San Francisco*..... 328
Wells D. A., death of..... 323

RECENTLY PATENTED INVENTIONS.

Mechanical Devices.

APPARATUS FOR MIXING TEA.—CHARLES H. BARTLETT, Bristol, England. The device of this inventor belongs to that class of mixing apparatus in which the tea is discharged through an axial aperture in the end of the mixing drum. The discharge-chute is permanently mounted within the front trunnion of the drum. Into the drum the chute projects in order to receive the tea from the mixing and discharging pallets. The chute extends outwardly as far as may be desired, and is carried preferably by a circular plate fitting the aperture of the trunnion, but prevented from turning with the drum. The inwardly-projecting or receiving part of the chute is provided with a sliding cover, by means of which the tea is prevented from being delivered to the chute while the mixing is in progress. The drum is provided with internal helical blades whereby the tea is brought to cups at the front end, which cups deliver the tea to the discharging-chute. So long as the cover remains closed, the tea deposited thereon falls back on one or more helical conveyers of a twist reverse to that of the blades. By this means the tea is returned to the rear end of the drum.

TYPE-WRITING MACHINE.—WILLIAM P. QUIMBY, Gettysburg, Pa. The essential feature of this invention is found in an improved mechanism, by means of which the lines may be spaced any desired distance by the operation of the spacing lever. In carrying out the invention, the spacing lever employed is made to turn the platen. In connection with the spacing lever and the means whereby its movement is imparted to the platen, devices are used which operate to vary the extent to which the movement of the lever is imparted to the platen. Hence, the distance to which the platen is moved by the spacing lever may be varied without changing the movement of the lever. A uniform movement of the spacing lever is thus secured, and a varying movement of the platen effected, to secure thereby a very narrow or wide spacing, or any intermediate spacing.

COMBINATION-LOCK.—JAMES W. MINER, Johnstown, N. Y. This invention provides an improvement in such combination-locks as are used on safes, vaults, and the like. The lock has two combinations of tumblers, working independently, but operated by a common spindle. By turning the handle of the spindle, either combination can be thrown out of action, or moved by a common cam on the operating spindle into engagement with a locking bar. The peculiar merit of this invention resides in the possibility of employing so many combinations of tumblers that it would be well-nigh impossible, to one not knowing which combination is in engagement with the locking bar, to pick the lock.

Miscellaneous Inventions.

FURNACE-CLEANER.—CHARLES M. MCCAMEY, Denver, Col. The purpose of this invention is to furnish an attachment for fire-boxes, by means of which attachment the ashes may be quickly removed from a grate. The furnace is provided with a rigid dead-plate located forwardly of the grate-bars and provided with an opening through which clinkers may be dropped into the ash pit. A cover commands the opening, is mounted to slide back and forth on the dead-plate in a plane parallel with that of the plate, and is supported by continuous engagement with the top of the dead-plate.

EXTENSION SHADE AND CURTAIN-POLE HOLDER.—FRANK T. RICE, Tower City, N. D. This curtain-shade and pole-holder comprises a frame formed in two sections sliding longitudinally on each other. Each section has its outer end bent inwardly in the form of a U. A shade-holding fixture is mounted to swing on each inwardly-bent end of the sections. Each fixture has a flange which serves to limit the outward movement thereof, and each is capable of swinging into a plane with the frame-sections. Pins are carried by the frame-sections at points outwardly from the adjacent shade-holding fixtures. Pole-supporting brackets are carried on the pins. For each frame-section a hanger is provided. Each hanger has a loop with which the blocks are engaged, by this means connecting the hangers with the frame-sections.

FOLDING CHAIR AND ROCKER.—RUDOLPH LUND, Cincinnati, Ohio. In this folding-chair, two inverted U-shaped leg-frames are pivoted together in order to enable one to fold within the other. An inverted-U-shaped back-frame has its side members pivoted a short distance from their ends to the upper portions of the side members of one of the leg-frames. The lower ends of the side members of the back are formed with inwardly-projecting lugs. A seat and back of flexible material are secured to the cross-bar of one leg-frame, passed under the cross-bar of the other leg-frame and secured to the cross-bar of the back-frame.

WAGON-BODY.—LYSANDER J. LISHNESS, Bad Axe, Mich. This invention provides a wagon-body having a superstructure at its sides, which structure may be arranged perpendicularly to form a stock-rack, and which may be thrown outwardly to form a hay-rack. The device constitutes a desirable form of wagon-body for use on farms or places where produce of light weight but of large volume must be transported to some distance.

BAG-FASTENING.—CONSTANT LE DUC, South Park, N. J. The fastening of this inventor has staples secured to one side of the bag-opening and projecting from the inner side of the bag. The other side has slots which receive the staples. A flap is connected with

the side having the staples. A bar is attached to the flap and is provided with means for engaging the staples to lock the twosides together.

MEAT-BEATER.—MARSHALL E. HUNT, Belle Plain, Iowa. This device for beating meat in order to cause it to become tender has a handle, a body-bar attached rigidly thereto and extending transversely with reference to the handle, and a number of fingers projecting transversely with reference to the handle-bar and supported rigidly thereon. The fingers extend parallel with one another from the side of the body-bar opposite the handle, and are each provided with a series of annular projections spaced apart. These projections cut into the meat, but do not mutilate it beyond the necessary degree to make it tender.

SHAFT OR TONGUE COUPLING.—KNUT BULAND, Linn Grove, Iowa. The purpose of this invention is to produce a shaft and tongue coupling which will enable the shaft or tongue to be quickly removed from a carriage and another substituted in its place. This is attained by attaching to the rear end of the shaft or tongue a forwardly-facing hook, which is adapted to engage a pivot-pin; and by locking the hook in position by securing to the shaft a spring-held block adapted to fill the space between the pivot-pin and the axle, when the shaft or tongue is raised, thus preventing the hook from being disengaged until the shaft or tongue has been dropped to such a position as to remove the block.

DUMPING-WAGON.—THOMAS WRIGHT, Jersey City, N. J. In connection with the sill-frame of a wagon-body, and a gear-frame whereon the sill-frame is normally seated, this inventor employs a number of rock-arms pivoted on the side-beams of the gear-frame. Carrier-bars are held in parallel planes by transverse shafts passing through the carrier-bars and also through the ends of the rock-arms. Rollers are located on the outer ends of the transverse shafts. Means are provided for raising the rock-arms to press the rollers upon the sill-frame and adapt the sill-frame to roll thereon.

SLEEPING-BAG.—SARAH WINTERS, Seattle, Wash. This device is composed of a casing constructed of cloth and eider-down. The purpose of the invention is to provide a cover for persons sleeping in arctic climates. The bag is made of a fabric having an inner and outer layer of cloth, between which the eider-down is quilted. The interior of the bag is provided with a pillow. The bag is formed with flaps, so that the person using the bag may be completely inclosed.

DOOR-GUARD.—JEFFERSON NAGLEY, Marysville, Wash. The object of this invention is to provide a means whereby persons will be prevented from placing their fingers accidentally in the door-opening where the hinges are located. To this end, the inventor has devised a guard consisting of a flexible sheet adapted to

be secured to the door and to the jamb, crossing the opening at the place where the door is hinged. Auxiliary hinges are attached to the door and jamb, the members of which hinges are carried at an angle to the door and jamb within the flexible sheet.

FEED-REGULATOR.—OLAUS JOHNSON and PEDER P. HOLT, Northwood, N. D. The feed-regulator of these inventors is designed for use upon roller-mills for feeding material uniformly to the burs. In addition to the means for regulating the flow of the material to the burs, provision is also made for catching and holding nails, screws, and other hard objects, which would otherwise injure the burs and stop the mill. The regulator consists of a casing, a fluted feed-roller mounted therein and having one end reduced in size, and spring-plates underlying the reduced end of the roller. The spring-plates are curved beneath the roller so as to come close to the roller and be adapted by reason of this proximity to regulate the flow of feed.

SWIMMING APPLIANCE.—JACOB STROUP, Washoe, Idaho. The object of this invention is to produce a simple device which may be attached to the ankle and foot of a swimmer, and which, when so attached, will be expanded to secure a purchase upon the water when the foot is forced back in making a stroke. To the accomplishment of this object, the invention consists in employing a curved ankle-plate provided with a stirrup or straps by means of which it may be located upon the rear side of the ankle, and with a pair of light metal wings to which are secured webs.

Designs.

COLLAR OR CUFF BUTTON.—FRANK W. TAYLOR, St. Paul, Minn. The spherical head of this button, according to the design, has running through it a bar beveled at its ends. The shank of the button is flattened and formed on the button disk. The bar enables the button to be readily inserted and prevents its slipping out. The flattened shank prevents the button's turning around.

WALL-PAPER.—ARTHUR MARTIN, Paris, France. This design consists of a bouquet of flowers of different varieties tied by a ribbon knot, the ends of which appear as scrolls, and streamers of honey-suckle connected with the stems of the bouquet.

GRAVE VAULT.—ELIZA HUBBARD, Carlinville, Ill. The leading feature of this design consists of an arched top having convex sides, end and bottom surfaces, and flanges at the meeting of the top with the body, the flanges interlocking. The shape of the vault is such as to permit ready manipulation of the whole.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for 10 cents each. Please send the name of the patentee, title of the invention, and date of this paper.