

these. he should, before making it on the map, make a careful estimate of its direction and distance relative to them, the distance being estimated as a fraction of that to Pollux or to Mercury, or to the zenith or horizon. All maps thus marked should be sent to the National Observatory at Washington.

Drawings of the corona surrounding the moon during the total eclipse made by such as are expert in sketching will be useful, if made as exact as possible. In doing this it will be necessary to distinguish between the real object and the rays surrounding it, which are the result of an optical illusion. It may be well to have a smoked or colored glass through which to study the object but it should not be too dark, or the details may be hidden.

NEW IRON FENCE.

Our engraving represents a new form of iron fence invented by Freeman R. Martin, of Brooklyn, Greene Co., Wis

The inventor states that the fence is not liable to injury by wind or frost, or by expansion or contraction by changes of temperature.

The posts are made from a bar of round iron, in which are formed three eyes for receiving the hooks that connect the barbed strips, and its lower end is flattened and bent at a right angle to give it a good bearing in the ground, and to prevent it from being raised by frost.

The fence strip is made of thin iron having diagonal slits cut in opposite edges, and the points thus made are bent alternately in opposite directions to form barbs. The double hooks which support the strips pass through the eyes in the posts, and are received in slots near the upper edges of the strips.

This arrangement, in connection with the wings that project from the lower edges of the strips, insures the turning of the strips under a heavy wind, so that the edges only are subjected to pressure.

At suitable distances the strips are provided with expansion joints, shown in Fig. 2, in which the spring keeps the strip taut when it is expanded, and permits of contraction without injury.

This invention was patented through the Scientific American Patent Agency, May 28, 1878.

M. FAYE has lately suggested a new mode of determining a ship's route at sea, namely, by means of the log. With the sextant the angle is taken which the cord of the log makes with the direction of the sun or a star, and thus the ship's direction is determined.

THE ADJUTANT.

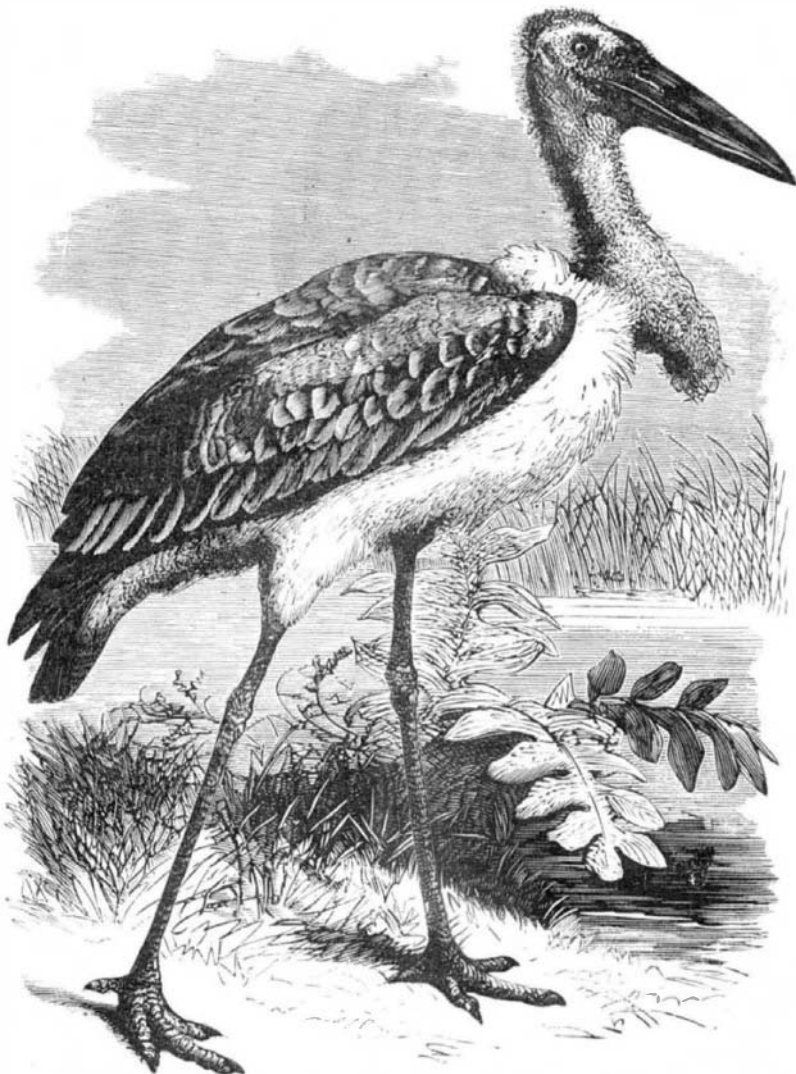
This fine bird is notable for the enormous size of the beak, which is capable of seizing and swallowing objects of considerable size—a full-grown cat, a fowl, or a leg of mutton being engulfed without any apparent difficulty.

The adjutant is a most useful bird in the countries which it inhabits, and it is protected with the utmost care, as it thoroughly cleans the streets of offal which would be left to putrefy but for the constant services of the adjutant and creatures of similar habits.

The attitudes assumed by the adjutant are varied and grotesque. It has a curious habit of airing itself on a hot day by standing with its huge beak drooping toward the ground and its wings stuck out straight from the body. Sometimes it squats on the ground with its legs tucked under its body, and sits with an air of dignity. Sometimes it stalks menacingly along, with its neck stretched to the utmost, its head thrust forward, and its huge bill open, looking a most formidable creature; but it is a cowardly bird, as it will run away from a child if boldly faced. It will, however, attack snakes, knocking them over before they can strike, and after battering them to death swallows them whole. During inundations the adjutant follows the course of the rising waters, and makes prey of the reptiles that are driven from their holes.

The capacity of the adjutant's stomach is enormous. It has the power of dissolving the soft and digestible parts and ejecting the indigestible, such as shells and bones. It is easily tamed, but is an incorrigible thief.

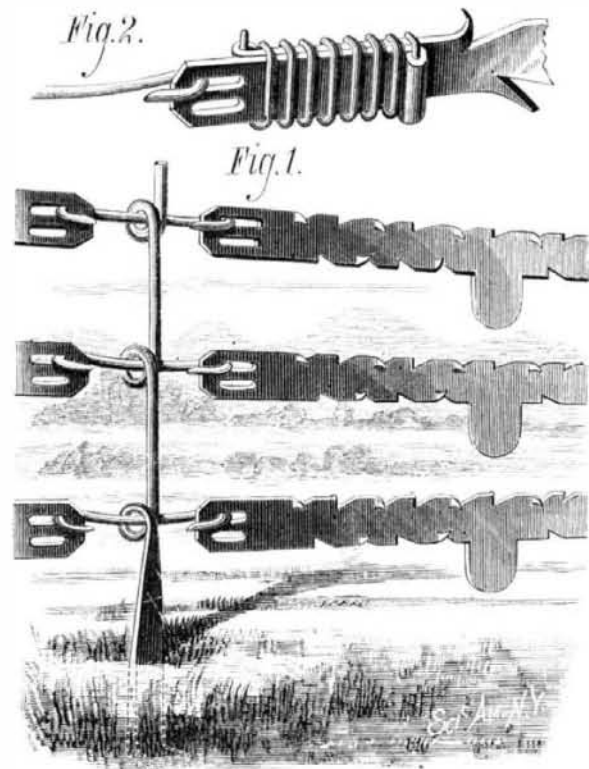
The exquisitely fine flowing plumes, the "marabou feathers," are obtained from the adjutant and a kindred species, the marabou of Africa. The general color of the adjutant is a delicate ashen gray above, and white beneath. The great head and proportionately large neck are almost bare of covering, having only a scanty supply of down instead of feathers. From the lower part of the neck hangs a kind of dewlap, which can be inflated at the will of the bird, but it generally hangs loose and flabby. We take our illustration from Wood's "Natural History."



THE ADJUTANT.

New Inventions.

J. Henry Potter, of East Bridgewater, Mass., has perfected and patented an improved Tremolo, for pipe or reed organs, which consists in a rotary valve placed in a chest connected with the main wind trunk and driven by a wind wheel placed outside of the chest, and supplied with wind from the trunk. It has a regulating valve for controlling the amount of wind supplied to the wind wheel, and a novel device whereby the effect of the tremolo may be delicately shaded so as to produce, with waves of the same length, a



MARTIN'S NEW IRON FENCE.

slight waver in tone, or the fullest and strongest effect, according to the requirements of the music to be rendered. Any desired effect may be had, varying from the fullest effect of the tremolo to the faintest perceptible undulation, which finally disappears in the plain tone of the pipe or pipes. The tremolo stop may be drawn without affecting the tone of the organ, or the stop may be left in, when the tremolo pedal may be moved without producing the tremolo effect. By this arrangement the swell and tremolo may be operated by the same pedal, and the swell effect will be produced in the tremolo as well as in the general tone of the organ.

Daniel James MacLean, of Reading, Pa., has devised an

improved Toy Bank, by which coins of any denomination or size may be deposited by means of a swinging figure, to the great amusement of children. A larger interior space is furnished than is generally the case in toy banks with figures.

An improved Metallic Horse Collar has been patented by Jesse C. Smith, of Centerville, Iowa. It is made of sheet zinc, pressed into shape, and strengthened with malleable iron stays, so formed as to also serve as a seat for the hames.

Ira Parke, of Mineral Point, Mo., has patented an improved Hive for Bees, which enables bees to be managed by inexperienced persons, and will enable the bee raiser to have his bees swarm or not. It will lessen the labor of the bees in removing refuse; it will admit of removing the best honey, and will resist wind, rain, and cold.

Edward G. Kearsing and Leonzo Kearsing, of Spring Valley, N. Y., have patented an improvement in Dental Gold Fillings. The gold is so prepared that it may be used in heavier masses than is practicable with gold prepared in the ordinary way, thus saving time and labor to the operator by shortening the tedious operation of filling teeth.

Cyrus M. Townsend, of Standing Rock, Dakota Ter., has recently patented an economical Device for Protecting those Surfaces of Leather Gloves, such as are used in husking corn or in any other kind of work, which are most exposed to wear, thereby rendering such gloves more durable than they would be without such protection.

An improved Condensing Vessel has been patented by Edward D. Bangs, of Galesburg, Ill. This invention relates to an improved condensing vessel or apparatus for extracting the entire strength from tea or coffee, and preserving also the aroma and flavor of the same, and for steeping, boiling, or cooking any substances whatever.

An improved Stove, for camp and other uses, that may be reduced to small and compact size for transportation, and readily put up for use, so as to be especially adapted for exploration parties and camp purposes, has been patented by Louis P. Völlbrecht, of Mason, Texas.

Charles Barlow, of Cookshire, Quebec, Canada, is the inventor of an improved Wash Bench, for supporting a wash tub and wringer. It is so constructed that it may be adjusted at different heights, and may be folded into compact form for convenience in storage and transportation.

An improved Stove Shelf has recently been patented by Geo. W. Robertson, of Peekskill, N. Y. It is designed to improve and render more convenient the ordinary cooking stove, and it consists in a novel device for attaching a shelf to the end of the stove.

Orson Colvin, of Schoolcraft, Mich., has patented an improvement in Beehives, which relates particularly to the form of the brood chamber and the comb guides or peak blocks secured at the top of said chamber. The lower portion of this improved hive contains the brood chamber, which has arc-shaped or concave sides. Having observed that bees tend to build their brood comb in an oval form, the inventor conceived the idea that a hive having concave sides or sides converging gradually toward the top, and having comb guides arranged at the top of the brood chamber, so as to connect the concave sides and span the space between them, would conform more to the instincts or natural tendencies of the bee, and result in an increased production of surplus honey. He states that upon practical test he found the theory correct, and the yield of surplus honey even greater than was anticipated.

Richard W. Riddle, of Minneapolis, Minn., has patented an improved Earth Closet, which consists in an endless apron carried by a movable frame, which is connected with the seat cover, so that it is moved forward when the cover is closed down, and is moved backward when the cover is raised. It has an arrangement of dogs or cams for clamping the apron and causing it to rotate when moved out or in, thus making two deposits of earth in the excrement receptacle as the seat cover is opened and closed.

An improved Bracelet Fastening has been patented by Leon Van Praag, of New York city, which consists of an elliptical band formed of a strip of spring metal, which may be of any desirable shape or configuration. To one of the ends of the strip of which the bracelet is formed, a concave plate is soldered, so that one half of it projects over the end of the strip. In the projecting portion of the concave plate, near its edge, there is a hole for receiving a hook that projects from the bracelet strip near its plain end. The bracelet is fastened by slipping the plain end under the concave plate, and inserting the hook in the hole. The bracelet may be easily fastened and unfastened by one hand.

An improved Grain Drier has been patented by Peter Provost, of Minneapolis, Minn. This invention relates to apparatus for dry-