

RECENTLY PATENTED INVENTIONS.

Pertaining to Apparel.

COLLAR AND GARMENT FASTENER.—W. M. LOWRIE, New York, N. Y. The purpose here is to provide a mounting for ornaments, whereby to adapt the ornaments as fasteners for portions of a garment, and to so construct the mountings that opposing hooks are employed for attaching purposes, and to so construct the hooks that while they may be introduced into or purposely removed from a fabric, article or garment, they will not under violent exertions leave their set position.

SUSPENSORY UNDERSHIRT.—R. D. PETERS, Knox, Ind. The invention relates to that class of undershirts in which an undershirt is formed on its front side with a sack or bag for supporting the scrotum after the manner of a suspensory bandage. Means are provided for securing privacy and protection from cold.

Electrical Devices.

ELECTRIC RECORDER FOR ICE PLANTS.—W. D. CAIN and W. H. WILLIAMS, Durant, Okla. The invention consists in the combination of a time dial rotated by a clock mechanism, a pen or pencil arranged to bear upon the dial, and an electro-magnetic operating device arranged to swing the pen or pencil across the dial, said device being operated by a circuit and a circuit closer located in the ice chute and closed by the transit of a block of ice.

Of Interest to Farmers.

PLANT-PROTECTOR.—E. R. DRAKE, De Land, Fla. In this case a cheap and simple apparatus is provided which will effectually protect lettuce and other tender plants or vegetables both from cold winds and freezing temperature, and also from too hot a sun, so that their growth is promoted while they are rendered more tender, palatable, and digestible.

ROTARY WEED-CUTTING MACHINE.—J. G. OLSON, Harrington, Wash. The invention relates to machines for use in killing weeds by cutting them off at or below the surface of the ground. The details of construction embody a plurality of cutter blades, carried on the ends of arms radiating from a rotatable shaft, means for supporting the shaft, means for progressively moving the same, and means for rotating the cutter shaft and blades as the shaft is progressively moved.

Of General Interest.

COLOR-STUDY DEVICE.—E. F. WAGNER, New York, N. Y. The object of the inventor is to provide a device adapted to be used by persons deficient in comparing or harmonizing colors and by students of color, for comparing different colors or placing them in different arrangements, enabling contrasting colors to be exhibited or harmonizing colors to be placed in opposition.

CLOSURE FOR THE NECKS OF BOTTLES.—T. S. RAINEY, New Orleans, La. The aim in this instance is to provide novel details of construction for a closure for the neck of a bottle or other receptacle, which when inserted and secured therein, after the receptacle is filled, will permit the contents to be freely decanted, but will prevent a refilling of the same.

GOPHER-TRAP.—A. F. RENKEN, Kramer, Neb. In this patent the purpose of the invention is to provide novel features of construction for a gopher trap, that afford a simple, practical, and inexpensive device of the character indicated, and which is adapted for killing the rodent in its burrow.

PROCESS OF MANUFACTURING NEW COMPOUNDS OF PROTEIDS WITH BISMUTH IODID.—A. BUSCH, 2 Blücherstrasse, Brunswick, Germany. According to this invention new compounds of albuminoids or proteids with bismuth iodid are obtained, which pass almost unattacked through the stomach by heating the precipitate of bismuth iodid and albuminous matter for some time, say eight to ten hours, at temperatures between 100 and 130 deg. C. The compound is particularly adapted to be administered in cases where a prolonged administration of small doses of iodine is required.

TRIPOD.—H. J. C. JESSEN, Nevada, Iowa. This tripod is for use in supporting cameras, telescopes, transits, gun-rests, etc.; and is arranged to permit of firmly setting the tripod on uneven ground or rocks, to allow convenient adjustment of the members of the tripod to bring the article to be supported into the desired position, and to permit of folding the tripod into a small space.

Hardware.

COMPOSITE FILE.—H. GETAZ, Schenectady, N. Y. In the present patent the invention is an improvement in files, relating to that class of files in which the teeth are composed of a series of cutting blades clamped together in an angular relation and adapted to be readily sharpened when dulled.

WRENCH.—H. N. ROTHWEILER, Seattle, Wash. The objects of the inventor are to provide a slidably mounted movable jaw for pipe wrenches in which no retaining pins or other detachable retaining devices are used; to provide an efficient pipe wrench with few

loose pieces; to provide a pipe wrench having removable threads on the shank thereof.

HINGE.—R. P. HAWLEY, Monongahela, Pa. The improvement relates more especially to hinges for waffle-irons and other devices in which it is unnecessary to separate or revolve the hinge members on each other as much as 180 deg., usually no appreciable distance over 90 deg. The members of the hinge are rigid with their respective pivots, and may be separated or lifted apart when the hinge is open.

PERMUTATION-LOCK.—J. P. GERAGHTY, Jersey City, N. J. This lock is more especially designed for use on railroad car doors and the like, and arranged to render the opening of the lock difficult for unauthorized persons, and to allow ready inspection of the car seal with a view of determining whether the lock has been tampered with in transit. This is a division of the application for letters patent of the United States for a locking device, formerly filed by Mr. Geraghty.

Household Utilities.

BOTTLE-WASHER BRUSH.—C. K. VOLCKENING, New York, N. Y. The more particular object of the improvement is to produce a type of brush suitable for mounting upon a tubular spindle and capable of cleaning the bottom and corners of the bottle and the inside of the neck, and in doing this to make the brush of such construction that hot and cold water can have but little deleterious effect upon it.

FLY-ESCAPE.—G. W. STEIN, Chicago, Ill. The escape permits egress of flies from the interior of a window, and may be employed for ventilation purposes. The construction and arrangements of parts are designed with reference to simplicity and cheapening the device, and for making its application to the sash easier and also for preventing its application from interfering with the free sliding of one sash over the other in hoisting the window.

Machines and Mechanical Devices.

COAL-WASHER AND ORE-CONCENTRATOR.—A. C. CAMPBELL, Asheville, N. C. The object here is to provide a machine for readily separating and discharging individually the same dense slimes of concentrates or of coal, the fine granular dense stuff, and the coarse and massive concentrates of ore or refuse of coal, the arrangements of parts being such that both a panning and jiggling takes place conjointly and interchangeably. The invention is such as shown and described in Letters Patent of the United States, formerly granted to Mr. Campbell.

Railways and Their Accessories.

TRACK-RAIL JOINT.—J. C. RIGGS, Berkeley, Cal. The purpose here is to provide the ends of track rails of standard T-form, with features which will effect a positive interlocking connection between such ends, when in pairs they are forced together in sequence, rendering a joint between two engaged ends of the rails practically continuous, and obviating jar, noise, and injurious wear, that occurs when the rolling wheels of cars impinge upon the ends of track rails that are formed and supported in the usual manner.

SAFETY DEVICE FOR AIR-BRAKES.—J. JUDGE, Pittston, Pa. In the present, Mr. Judge seeks to eliminate the frangible pipe of his former patent, and provide a valve and operating lever therefor, so constructed that when the lever is moved the valve opens but a return movement of the lever to its original position does not in itself close the valve. Means are provided whereby evidence will be recorded as to the number of times the safety device has been operated on each trip.

GRAIN-CAR DOOR.—J. THOMPSON, Garretson, S. D. This invention pertains to improvements in inner doors for box cars and especially for those cars for shipping grain and more in particular involves improvements in a door whereby grain may be shipped without danger of leakage such as would occur around the door of an ordinary freight car and whereby time and expense in opening the door may be saved.

Pertaining to Recreation.

GAME APPARATUS.—ADDIE M. FOSTER, Santa Barbara, Cal. More specifically, the invention relates to a game device in which a plurality of cups, each formed to receive an object, are connected by a flexible band which serves to project the object when the cups are separated so that the band is suddenly drawn taut, the band having a pocket to hold the object.

Designs.

DESIGN FOR A CHRISTMAS BAG OR PACK.—MARY PRUGH, Los Angeles, Cal. This design is for a bag or pack which is intended for use in holding candies, toys, or various articles such as given to children at that season. On one side of the bag Santa Claus is shown in colors and holding a bag. On reverse side, the words "Merry Christmas" are printed, and Santa Claus is also shown in part.

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



HINTS TO CORRESPONDENTS.

Full hints to correspondents were printed at the head of this column in the issue of August 8th, or will be sent by mail on request.

(10857) R. B. L. says: Will you please answer through your Notes and Queries the following questions, for they may help others than myself: 1. What is the best material with which to cover an aeroplane? A. The best material which is used for an aeroplane is probably silk, although this is generally thought to be too expensive, and ordinary unbleached muslin or any similar cloth will answer the purpose. Ultimately, thin sheet aluminium will be used. 2. What is the smallest size that you suggest to make an experimental aeroplane, that is the number of square feet? A. Aeroplane models can be made almost any size desired. We should think 5 to 10 square feet would be ample supporting surface. 3. How many square feet of surface will it take to raise a pound of weight? Will a large aeroplane lift more to the square foot than a small one? A. The amount lifted per square foot of surface of an aeroplane depends upon the speed at which the aeroplane is traveling through the air; 2½ pounds to the square foot is a good average amount at a speed of 25 to 30 miles an hour, although with the most efficient curved surface this can be raised to as high as 3½ or possibly 4 pounds. A large machine will not lift any more to the square foot than a small one, provided its surfaces are equally efficient. 4. Will you give the dimensions of Mr. Henry Farman's front main plane? A. The dimensions of the main planes of Mr. Farman's machine are: Planes 6½ feet wide by 32 feet long. There are two planes, one placed vertically above the other with a space of 5 feet between, a box-shaped tail 10 feet to the rear, in the center of which is a vertical rudder for lateral control. At the center of the planes and between them is carried a 50-horse-power Antoinette engine, weighing about 400 pounds. 5. An article in the SUPPLEMENT, No. 1696, page 7, states: "The thing to praise in an aeroplane should be slowness." Do you think it would be best to work for slowness and not speed? A. Slowness is certainly a desirable quality with the first experimental machine. The only trouble is that in order to be a slow-traveling aeroplane it must be a very large one. Most experimenters try to strike a mean by making the surfaces so that they will lift the entire machine and operator at a speed of about 25 miles an hour. 6. Can you give me the names of papers published in the interest of aeroplanes, etc.? A. There is only one special aeronautical paper published in this country, Aeronautics, Thoroughfare Building, Broadway and 57th Street, New York. The Aerophile is the leading French aeronautical paper, and the Illustrirte Aeronautischer Mitteilungs is the leading German aeronautical periodical.

(10858) P. J. E. says: 1. How far ought a 2-inch spark coil to transmit wireless messages with a good relay and a regular filings coherer under favorable conditions? A. A 2-inch spark under favorable conditions should transmit a wireless signal 4 to 5 miles at the outside over water and 1 to 2 miles over land. Much depends upon the coil giving this spark. If this is its longest possible spark, and is a thin blue line, the distances above are too great, and should probably be halved. If 2 inches is a fat spark from a coil giving easily a much longer spark, the distances given above will be realized. Weather conditions also make a great difference in transmission. 2. Will 3 pounds of No. 34 B. & S. copper wire make the secondary of an induction coil designed to give a 2-inch spark with two turns of No. 16 on primary? If not, will you please give me the right amount? A. Three pounds of No. 34 silk-covered copper magnet wire should be sufficient for the secondary of a coil to give a 2-inch spark, but it will not do so with two turns of No. 16 wire for the primary. No. 14 or, better, No. 12 copper cotton-covered magnet wire should be used and wound in two layers of about 8 inches in length on the core. Data for such a coil are given in full in SUPPLEMENT No. 1403, which we send for ten cents. Fuller instructions for coil winding and making can be found in SUPPLEMENT Nos. 160, 1124, 1527, 1605, price ten cents each. 3. Will lightning work the relay of a filings coherer with antennae and grounded through the instruments? A. Lightning often produces signals upon wireless apparatus many miles distant. It is sometimes possible to make short words out of such signals, they simulate Morse characters so closely. 4. What kind of current passes through a telephone wire? A. In the telephone as ordinarily used the induction coil gives an alternating current. 5. What good book have you got to instruct one in the theory of the telephone, simple, for one that knows nothing about it, not over \$1 or \$1.50? A. We can supply you with the "A B C of the Telephone" for \$1. You will find this book what you say you wish and within your limit of price. 6. I miss the SCIENTIFIC AMERICAN very much, but it is hard for a student to keep everything going with nobody but himself to fall back upon. I expect in time to be a permanent subscriber to the SCIENTIFIC AMERICAN,

although I would rather have a paper devoted entirely to electricity, as it is the only subject that claims my attention. I experiment very much with it, especially in wireless telegraphy and X-rays. I have an apparatus like that described in SCIENTIFIC AMERICAN of December 28, 1907, for controlling distant mechanical effects by wireless. A. We are glad you like the SCIENTIFIC AMERICAN and we think it better for you and all others to have a paper which gives scientific news upon all subjects than to make it exclusively for those interested in one department of science. If it were limited so much in scope, we could not call it the SCIENTIFIC AMERICAN. It must include all subjects in which Americans are interested.

(10859) J. Z. says: When two wireless stations are working, is there any way of preventing other stations taking the same messages, or interfering with the work, between the two stations? Also can the electric spark be pitched or tuned? A. There is no way of preventing anyone who has a wireless receiver which can be tuned to any wave length, from receiving any message which comes along and whose wave length can be found while the message is passing. The tuning of the receiver to the transmitter is a necessity. See our SUPPLEMENT Nos. 1605, 1622, 1623, 1624, 1625, price ten cents, for a series of articles upon setting up, tuning, and operating a wireless station.

(10860) E. C. C. says: Is it a fact that an object weighs more at sea level than it does at say 10,000 feet, or two miles, above sea level? If so, is the decrease in weight exactly proportional to the increase in height? A. An object has its greatest weight at the sea level. Above the sea level the weight diminishes in the proportion of the increase of the distance squared. At the level of the sea, an object is 3,959 miles from the center of the earth, while at an altitude of 5 miles above the sea it is 3,964 miles from the center of the earth. At the upper place its weight is $(\frac{3959}{3964})^2$ or about 0.9975 of its weight at the level of the sea. This is in accordance with Newton's law of gravitation, the law whose discovery is considered to have been the most remarkable triumph of the human intellect in all time.

(10861) C. W. L. says: I have a steel pin about seven inches long lying on my office desk that has four distinct magnetic poles. Either end of the pin attracts the south pole of the magnet, while a point at or near the center attracts the north pole, while a little farther along on the opposite side of the center the south pole is attracted. Between these two central points and the ends the pin is neutral. Is this a common phenomenon? We are taught that magnetic bars have two opposite poles and only one neutral point. Can you explain this seeming departure from an otherwise uniform law? A. It is not so uncommon a phenomenon to find a magnet with secondary poles along its length. Such poles are called "Consequent Poles." They are alternately north and south, all the way around in a dynamo frame for the field. The coils are wound to make them so. Multipolar dynamos have many poles. A steel bar can be magnetized in this manner by using coils of wire to produce the magnetism. Near one end of the bar wind a coil of wire, perhaps 40 or 50 turns, then leaving an inch or so bare, wind another coil in the opposite direction. If the first has been wound over toward the right, the second will be wound over toward the left. This may be repeated several times if the bar is 8 to 10 inches long. Poles will result wherever the direction of the winding is changed, and they will be alternately plus and minus. As you describe your bar it seems to have two north poles with no south pole between them. This is not possible. The north pole occupies all the space along the bar over which the south pole of a magnet is attracted. It is not a uniform law that a magnet can have but two poles. That depends upon the manner in which it is magnetized.

(10862) L. S. says: I thank you for the interesting article in SCIENTIFIC AMERICAN, April 18, 1908, on "Weather Vane with Attachment for Indoor Reading." Would you be kind enough to inform me through your valuable paper, which kind of battery, and of how many cells, is used to work the apparatus? A. The arrangement of the indicator of the weather vane, as described in our issue of April 18, 1908, requires a closed-circuit battery, since it is always in circuit and indicates all the time. A gravity battery is the best for this use. We judge that four cells will do the work. If you do not require the indicator to be always in circuit, you can use a dry cell battery and place a push button in the circuit of the wire *G* on the front of the box *K*, and thus save battery current. When you wish to see the direction of the wind, push the button, and the needle will swing to the proper position. We should much prefer this arrangement. There is a defect in this apparatus, as described. If the needle is of iron either end will be equally attracted and if it points as shown in Fig. 4, one cannot tell whether the east or west magnet is attracting it. This can be remedied by placing all the magnets with the south pole inside, and using a small compass box with a magnetic needle in the circle of the magnets. Then the north pole of the needle will give the direction of the wind at all times.