

old males capped the summit, and the united clamorings of the vast assemblage could be heard miles out at sea.

At the close of the season, which lasts about three months on the Californian coast, a large majority of the great herds, both male and female, return to the sea and roam in all directions in quest of food, as but few could find sustenance about the waters contiguous to the islands. They live on fish, mollusks, sea fowls, and they always swallow a few pebbles or smooth stones, some of which are a pound in weight. The quantity of fish consumed is enormous. Some years ago it was estimated that the total number of sea lions in the neighborhood of San Francisco was upward of 25,000, each of which consumed from ten to forty pounds of fish per day.

In capturing gulls the sea lion displays no little skill and cunning. When in pursuit of a gull, it dives deeply under water and swims some distance from where it disappeared, then, rising cautiously, it exposes the tip of its nose along the surface, at the same time giving it a rotary motion. The unwary bird on the wing, seeing the object near by, alights to catch it, while the sea lion at the same moment settles beneath the waves, and at one bound with extended jaws seizes its screaming prey and instantly devours it.

The California sea lion is the species usually seen in captivity in Europe and America. They appear to thrive better than any other form of seal in that state. In captivity these sea lions display great affection for one another, and when one of a pair dies the other frequently pines away and dies, according to observations made of captive specimens in Chicago. Our engraving is made from a photograph taken at Central Park, New York.

#### A Meteor in Russia.

According to a dispatch from St. Petersburg, a colossal meteor recently fell into the sea at the foot of Bjnrbel, twenty-six miles from Helsingfors, penetrating a bed of clay for a distance of twenty-five feet. It is expected that it will be raised shortly and that the value of the iron and other elements will be very considerable.

### RECENTLY PATENTED INVENTIONS.

#### Agricultural Implements.

**LAWN-MOWER.**—MARTIN C. SATHER and CHARLES W. BIBB, Minneapolis, Minn. This invention is an improvement in that class of lawn-mowers having reciprocating cutter devices, and comprehends a novel construction of cutter-operating means whereby the cutter will be caused to operate uniformly on irregular as well as even ground. The knife-bar is held steadily in proper position, irrespective of the character of the ground over which it passes. The connecting means for transmitting the reciprocal action to the movable cutter-bar from the rotary drive-shaft are rendered stable and simple and of such nature as to effect a positive and uniform action of the cutter.

#### Bicycle Appliances.

**ADJUSTABLE HANDLE-BAR FOR BICYCLES.**—JESSE ALEXANDER, Manhattan, New York city. On the handle-bar a collar is fitted, having in its periphery teeth which mesh with a tooth on a plug sliding and rotating in the hollow steering-rod. A spring presses the plug toward the collar, and a locking-bar engages in a transverse slot of the plug, and with opposite slots in the steering-rod and post, to permit an adjustment of the plug. By means of this handle-bar attachment, the rider is enabled readily to adjust the handle-bar to any desired position while on the wheel.

#### Engineering Improvements.

**REVERSING-GEAR FOR ENGINES.**—DANIEL WARRE, Rouseville, Penn. The purpose of the invention is to provide an improved reversing-gear, especially designed for use on gas-engines, and arranged to permit the reversal of the engine without undue jar to the working parts. The reversing-gear is provided with a cylinder having valved exhausts, each operated from the main driving-shaft, and with a yielding connection for the stem of the exhaust-valve to permit the exhaust-valves to be thrown to a closed position when the reversing mechanism is operated. By reason of this peculiar construction, use is made of a compressed fluid to establish an equilibrium in the cylinder to stop the momentum of the piston as soon as possible, and to start the piston on the reversing-stroke in a short time without undue shock.

#### Mechanical Devices.

**COTTON PRESS.**—EDMUND M. IVENS, 119 McCallister Street, Chattanooga, Tenn. The cotton-baling mechanism devised by this inventor compresses cotton by the roller-process. The invention provides a bat forming and laying means held to reciprocate over the press-box or bat-receiving chamber whereby the cotton is the more evenly distributed, and means so connected with the main framing of the machine as to prevent the folds or laps of the bat or sheet from expanding during the folding or box-filling operation, whereby great weight and density are obtained in a bale of small size. In connection with the lapping devices and the press-box, a plunger is used which recedes as the pressure of the folded sheet reaches a predetermined point, so as to maintain a uniform pressure on the folds.

**AUTOMATIC PACKAGE-FILLER.**—WILLIAM A. OVERBECK, Omaha, Neb. The present invention provides improvements in devices for automatically filling packages with sirup, oils, meal, or the like. In order that the friction of the parts may be reduced to a minimum and that greater accuracy may be obtained, the inventor employs an electromagnet and a battery for

releasing the valve-closing mechanism, the magnet being operated by a contact caused by the upward swing of the scale-beam. The circuit through the operating magnet is broken as soon as the valve-closing mechanism has been released, thus using the battery as little as possible and preserving its strength.

**HYDRAULIC-POWER MACHINE.**—ABRAHAM L. RINEARSON, Horse Shoe Bend, Idaho. The machine is adapted to take power from the current of a stream and to apply that power for various purposes at a point inshore or over the stream, if necessary. In the construction of this machine a stationary frame is included, upon which there freely moves another frame. A current-wheel is journaled in the movable frame and drives a power-shaft supported by lift-bars. An adjusting shaft is connected with the lift-bars, whereby the current-wheel and power-shaft are simultaneously and equally raised and lowered as required by the height of the water or by the drift.

**PORTABLE BALING DEVICE.**—CHARLES HERBARD, Pequaming, Mich. The device provided by this inventor is designed particularly for use in baling hemlock or other bark in the woods. The portable device comprises a frame or base which is adapted to be used as a drag or sled, and which has grooves or sockets extending along the center. A vertical compressing-frame fits in the grooves or sockets upon the base; and upon the upper part of this vertical frame compressing means are posited. Insertible in the frame are top and bottom retaining bars, adapted to receive the material between them, the upper bars being engaged by the compressing means.

**MANURE-DISTRIBUTER.**—JOHN M. KRAMER, FRED HECKMAN, and HENRY SYNCK, JR., of Maria Stein, Ohio. This machine is so constructed that the load of manure will be automatically fed to a distributing-beater. A retarding-beater is employed in connection with the distributing-beater, and serves to hold back any lumps of material until they have been shredded for distribution. A distributing-fork is provided which is automatically operated in conjunction with the distributing-beater, and which is so arranged that the manure may be distributed beyond the sides of the receptacle in which it is carried and beyond the ends of the distributing-beater.

**SAW-SETTING MACHINE.**—PIERRE SCOTTE, assignor to the Helmers Manufacturing Company, Leavenworth, Kan. It is the purpose of the present invention to provide a machine designed to set the teeth of circular and hand saws, without requiring the services of a skilled mechanic. Pivoted at one end of the frame of the machine is a saw-carrier guide carrying a swinging nut. On the guide a saw-carrier slides. An adjusting-screw engages with the nut to shift it and the carrier. When the nut is swung out of engagement with the screw, the saw-carrier can be shifted longitudinally on its guide until the saw is about in proper position relatively to its anvil. The nut is then made to re-engage the screw. The screw is next turned so as to shift the nut and the saw-carrier to adjust the saw minutely and bring the teeth in proper relation to the bevels of the anvil.

**MACHINE FOR CLEANING FRUIT.**—BENJAMIN B. and JAMES H. WRIGHT, Riverside, Cal. This invention is an improvement upon a machine devised by the same inventors. The improved device provides a mechanism for connecting and disconnecting the brush-supports, thereby enabling an operator quickly and accurately to substitute perfect brushes for old ones, while the machine is in operation. The backs of the brushes, moreover, are so made that the fruit will

### Ocular Powers of Kaffirs and Bushmen.

It has frequently been asserted that the eyesight of Indians, Kaffirs, and "native" tribes generally is superior to that of Europeans, and Dr. Beheim, who has been on a visit to Johannesburg, has during the last few months busied himself investigating the optical condition of the natives. He has examined the sight of altogether 1,853 colored persons—Kaffirs, Basutos, Hottentots, and a few Zulus and Bushmen. The native locations and the native schools furnished most of the material. Out of 1,843 natives examined, 100 were females and 846 males, all of whom were, or seemed to be, under the age of thirty. The result, as given in The African Review, was the following:

1	had power of sight almost	20—60
3	"	about 20—50
35	"	" 20—40
218	"	" 20—30
1,508	"	" 20—20
50	"	" 20—15
28	"	" 20—10
9	"	" 20—5

In other words: Out of a total of 1,853 natives, 1,509 possessed a vision equal to the normal vision of Europeans, 257 had a stronger, and 87 a weaker sight than the average Caucasian.

The phenomenally powerful sight of 20—60 (which means that objects were noticed at a distance of 60 feet which an emmetropic white person could notice at 20 feet only) belongs to a Kaffir girl fourteen years old. The above-mentioned decrease of sight was due to myopia, principally acquired at school, thus proving that the same causes which produce short sight in children of the white race will react similarly in children of the dark race. Dr. Beheim found it most difficult to ascertain in every case the very exact power of vision, on account of hesitating statements; but the correct average measure has been given. The result was somewhat disappointing, in so far as the superiority of native eyesight over European is by no means so general as it is often supposed to be. With a few exceptions, all natives tested in regard to their power of vision were also tested in regard to the perception of

colors; but not a single case of color-blindness, or hesitation in naming even shades of color, could be detected.

### The Current Supplement.

The current SUPPLEMENT, No. 1217, is particularly interesting, and owing to the extraordinary interest concerning experiments with liquid air at the present moment, we republish an interesting article upon it. "The Logical Arrangement of the Motive Power of Warships," by Rear-Admiral George W. Melville, is an important and authoritative article on the subject. "Life Among the Crusaders," a lecture by Prof. Dana C. Munro (Professor of Mediæval History, University of Pennsylvania), is of the greatest interest and importance and is a genuine contribution to literature. This is the first of a series to be entitled the "University of Pennsylvania Lecture Course." We believe that this series will be of great importance, as the lectures are by scientists, historians, etc., of great reputation. There is also an interesting article on "Wireless Telegraphy," showing the telegraph mast and the actual instruments which are used. "How a Pope is Elected" is an exceedingly interesting article, describing in considerable detail the imposing ceremonies connected with the election of a pontiff, with fac-similes of the ballots used by the College of Cardinals in conclave.

### Contents.

(Illustrated articles are marked with an asterisk.)

Academy of Sciences, National	261	Matches, French phosphorus	263
Army, Springfield	259	Meteor in Russia	261
Band sawing setting machine	263	National Academy of Sciences	261
Baths, Sutro	266	New processes of cleaning bed	264
Birds, effect of storms on	263	linen	264
Books, new	270	New York Academy of Sciences	265
Bridge contract, Athbara	260	Notes and receipts, miscellane-	264
Calometers	263	ous	264
Consuls working for American	260	Plow, convertible	263
trade	260	Refrigerating plant, Manila	265
Drill, Marvin electric rock	262	Rifles, manufacture of	259, 267
Egg forger, Parisian	265	Science notes	264
Eyesight of Africans	269	Sea lions, California	268
Fire precautions, Paris	265	Sine wave telegraphy	260
Fish hook	264	Supplement, current	269
Guam, business of	266	Telegraph, wireless	260
Gun, new army wire	260	Telegraphy, sine wave	260
Heavens in May	261	Telegraphy, Zickler wireless	265
Ice in rivers, action of	265	Tools, American machine	261
Inventions recently patented	269	Typewriter ribbons, durability	265
Lemon squeezer	264	Of	265
Locusts, migration	265	Wireless telegraphy	260

find ready entrance into the machine; and the supports for the brushes are constructed so that they may be securely and readily applied to the carrying-wheel.

### Railway Contrivances.

**COUPLING FOR AIR-PIPES OF RAILWAY CARS.**—MILLARD F. SINCLAIR, Humboldt, Tenn. In the coupling a hollow-coupling-head is included, in which a spring-controlled valve is located, adapted normally to cut off the communication between the front and rear of the head. A piston is connected with the valve, which piston extends out through the front of the coupling-head. A guide is connected with the valve; and a key locks the guide. Should a train break, the valve in the coupling of the last car of the first section will automatically close, while the valve in the forward car of the detached train-section will remain open, permitting the escape of air, and thereby applying the brakes. The detached cars will thus be stopped after traveling but a short distance.

**METHOD OF AND DEVICE FOR CONNECTING RAILWAY-RAILS.**—CHARLES K. FREER, Port Clinton, Ohio. The abutting railway-rails are provided with diagonally-located and oppositely-inclined recesses at their end portions, the recesses in the ends of the rails being so placed that, when the rails are brought together, the outer ends of the recesses will register. A plug is located within the recesses and conforms with their combined contours. Rails thus joined cannot sag; nor can they be drawn apart unless the connecting plug be separated.

### Miscellaneous Inventions.

**MARKING-STAMP.**—THEODORE H. SOBLEN, Granite Falls, Minn. This hand-stamp is designed for retail merchants and is arranged to mark simultaneously the cost and selling price of goods. The device consists of a stamp in which two magazines are provided, one carrying types representing the cost-mark, and the other carrying letters or figures representing the selling-price. The magazines are adjustable to permit a number of these types to be slid out and assembled in a printing-form, and there temporarily locked until the form requires to be changed.

**AUTOMATIC STOOL.**—CHARLES H. GREB and EUGENE B. HEID, Canal Dover, Ohio. The invention is an improvement in automatic stools of that class, wherein the arm bearing the stool at its upper end, is pivoted at its lower end in a suitable base secured to the floor. The invention provides mechanism whereby the adjustable stop for limiting the movement of the stool-arm is arranged out of the way of the mop or broom used for cleaning the floor; and the spring for actuating the arm is so incased and protected that it cannot be put under tension by the foot of a person on the stool.

**MINER'S LAMP.**—JOHN D. WILLIAMS, Sherodsville, Ohio. The bowl of this miner's lamp has an open end tube which is pendent from a collared aperture, and made imperforate. The cover is made independent of and detachable from the lamp-bowl upon which it fits. A pendent wick-tube is mounted within the bowl-tube and contains a wick which takes up the gasoline or other hydrocarbon used. The arrangement of parts is such as to render the lamp safe from explosion, to adapt it to be safely filled when lighted, and to increase its strength and durability.

**SLATE-CLEANER.**—JOHN H. WELLBORN, Agricultural College, Miss. The present invention provides a simple slate-cleaner, the water-reservoir of which is made of a single blank, bent and rolled to form a

cylinder in which a cleaning-piece and a drying-piece are inserted. The body of the cleaner being filled with water, the cleaning-piece will be moistened; and the device is ready for use.

**CIGAR-BOX.**—WILLIAM TRIBBLE, Alton, Ill. It is the object of this invention to provide a cigar-box so arranged that the cigars may be successively drawn out by mechanical means—such, for instance, as in the coin-controlled vending-machine already patented by the inventor and described in these columns. The drawing-device is passed back and forth between the layers of cigars, with the fast end extended over the top layer. The free end passes under the lower layer and is designed to project through an opening at the bottom of the box. By pulling on the drawing-device, the cigars are discharged one at a time through the opening.

**CIRCULAR SINGLE-SAW.**—SIEVE T. JOHNSON, Trinidad, Cal. The saw comprises a central section having a boss and a flange projected outwardly beyond the boss, a rim-section having teeth at its outer periphery and transverse, semicylindrical recesses in its inner periphery, and screws extending through the boss and in the recesses of the rim-section. When it is desired to remove a worn-out or broken rim-section, it is necessary to remove only the screws, and then to lift the rim-section from the boss. After a new rim-section has been substituted for the old, the screws are replaced.

**ELECTROTYPE.**—WILLIAM T. BARNUM, New Haven, Conn. The electrotype devised by this inventor is simple in construction, and is designed greatly to reduce any strain incident to its use in the printing-press and largely to diminish the weight of the skeleton base. The printing-block has flanges constituting the body of the block and having a set of registering apertures in which strengthening-rods are fitted serving rigidly to support the flanges, one against the other.

**PHOTOGRAPHIC MAGAZINE-CAMERA.**—ALFRED LECHI, Manhattan, New York city. The camera contains a pile of double plate-holders which travel in grooves in the casing. A slide is movable in the casing, and has spring-hooks for moving the lowermost plate-holder from under the pile on the forward movement of the slide. The slide is also provided with bars for pushing the removed plate-holder into position for exposure on the return motion of the slide. By means of a spring operated mechanism controlled from the outside of the casing, the movements of the slide can be controlled.

**INCANDESCENT MANTLE.**—JOSEPH LEDERER, Manhattan, New York city. This invention provides a mantle which need not be burnt at the factory, nor impregnated when burnt in collodion in order to prevent the breaking of the delicate residue which composes the mantle. After the mantle has been impregnated with the salts usually employed, it is stiffened with a solution of collodion and camphor, and then folded to form creases. The mantle, in use, is hung from the usual burner-hook. Then by igniting the mantle, the fabric, as well as the solution of collodion and camphor, will be burnt away; and after the burner is lighted, the residue will form the usual mantle.

**NECKTIE-FASTENER.**—WILLIAM M. S. MILLER, Sewickley, Pa. The fastener is formed of a single piece of wire, bent to form loops which engage the collar and the collar-button. The device, when in position, is incapable of lateral dislocation, a disadvantage common to many necktie-fasteners.

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