

Quicksilver Mining in Tuscany.

The quicksilver mines of the district of Monte Amiata rank among the most valuable and important mineral resources of Tuscany. Monte Amiata, the Mons ad Meata of the ancients, is situated in the province of Grosseto, 36 miles from Siena.

The mines are found to the southeast of the village. It has been clearly proved that cinnibar (the ore of quicksilver) was known to the ancient Etruscans, red mercurial pigments having been used by them in decorating their vases and in such paintings as the frescoes in the rock tombs of the cities of Saturnia and Sorana. Moreover, in the mine of the Siele, stone implements have been found which are held to afford proof that the cinnibar ore there was worked in the flint age. In 1878, when a French company were carrying on prospecting operations in the vicinity of Castell' Azzara, some human skeletons were found in the course of driving an adit, and close by them a gold coin bearing the inscription of Philip of Macedon. These facts would point to the conclusion that the cinnibar deposits of the Monte Amiata were known and to some extent worked at a period of extreme antiquity.

The revival of mining operations in this district dates from the year 1846, when the accidental discovery of some pieces of rich cinnibar in the bed of a torrent induced a speculator to acquire the mining rights over the surrounding lands, and subsequently to form a small company for the purpose of searching for quicksilver. No satisfactory results were obtained, and with the exhaustion of the small capital of about 1,200*l.*, operations ceased. After various vicissitudes the property was bought at auction, in the year 1865, by a Jewish merchant of Leghorn, Signor Rosselli (whose family hold it to the present day), for about 3,000*l.*; but no one then could have foreseen the brilliant future in store for the mine.

In fact, in the year 1866 it produced only 58 hundredweight of quicksilver, of the value of about 600*l.* But gradually the yield increased until, in 1876, the production reached 1,908 hundredweight, while in 1890 the Monte Amiata district produced 8,837 hundredweight, of which quantity about 85 per cent came from the Siele mine, the balance being the production of some mines of secondary importance in the same district which were discovered more recently. The total production of the quicksilver of Monte Amiata during the years 1866-93 is put at 86,507 hundredweight, of the approximate value of 800,000*l.*, the great bulk of which has come from the Siele mine, which remains to the present day as productive as ever.

The splendid success of this mine, while it stimulated research for the same mineral in the surrounding territory, which in some cases has met with favorable results, was also the cause of a plentiful crop of lawsuits before the Italian courts, involving disputes as to the rights of property in the mine; but prolonged litigation proved that the title of its present proprietors could not be successfully called in question.

In connection with quicksilver mining it may be mentioned that some fifty years ago quicksilver was discovered at a place called Capita, about twelve miles from the town of Orbetello, on the southwestern boundary of the province of Grosseto. A mine was opened up under the management of a Cornish mining "captain" named Davy, and for account of an Englishman. Some quicksilver was produced, but for some reason or other the work was abandoned in 1867, and continued so until 1893, when the mining rights were acquired by Messrs. Rae Brothers, of Leghorn, and operations of a prospecting character were commenced. The geological formation is the same as that of the mines of Monte Amiata, and the abundant indications of cinnibar met with so far encourage the expectation that the mineral in paying quantity will be found as the workings advance.

Brick Pavements.

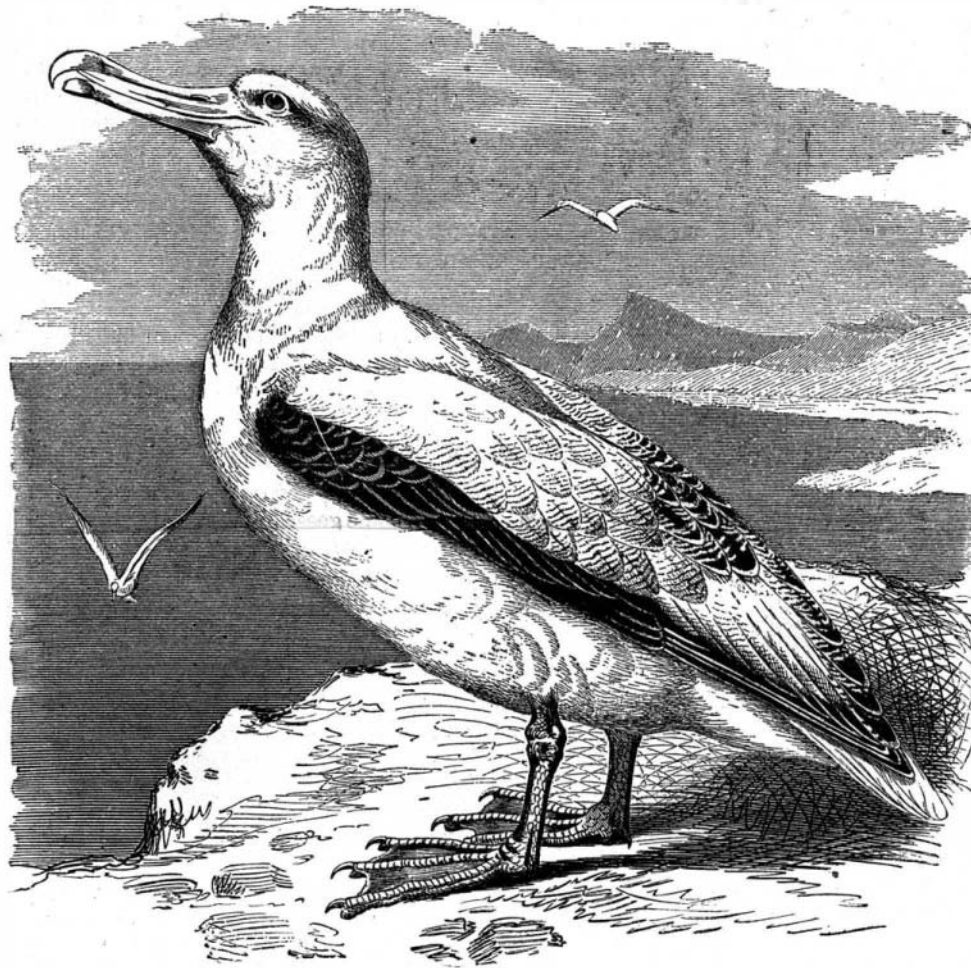
The Director of Public Works of Philadelphia, Mr. James H. Windrim, states in his annual report for 1893: "The streets repaved with vitrified bricks, which have been subjected to the wear of ordinary business travel, have not lasted five years; there are bricks in these streets disintegrated and gone, while others are in a fair condition to withstand longer wear. If all had shown the same endurance, bricks as a material for street paving would be in greater favor. The maker knows the quality of his bricks. Those from the por-

tion, of the kiln that are 'firsts' should be sold as such, after selection by the maker. The buyer or inspector cannot always know the grade of bricks by their looks, and as long as bricks are put on the market without selection to guarantee uniformity in their quality there will be distrust and their general use for street paving will be delayed."

THE ALBATROSS.

The albatross, a bird of the genus *Diomedea*, and of which there are several known species, is characterized by its great size, its powerfully built body, short, thick neck, and long and powerful beak, which is compressed at the sides and curves suddenly downward with a sharp hook at the point. The feet are short, the three toes long and completely webbed; the wings are long and narrow. The abundant plumage is of a grave color, which varies somewhat, according to sex and age, and also, perhaps, according to the season of the year.

The common albatross (*Diomedea exulans*), of which we publish an engraving—for which we are indebted to Brehm's "Thierleben"—is pure white, except for the black of the wings and a sprinkling of more or less brown over the white ground when it reaches a certain age. The eye is dark brown, the bare eyelid pale green, the beak pinkish white, shading to yellow toward the point; the feet are tinged with red. The common albatross is the largest sea bird known, weighing from 12 to 28 lb. The usual extent of its

**THE ALBATROSS.**

wings is about 11 ft., but one was shot off the Cape of Good Hope that measured 17½ ft. Its powers of flight are extraordinary, as might be presupposed from the extreme lightness of its hollow wing bones, which are said to be as long as the whole body. Sailors have many strange notions about it, one of which is that it sleeps on the wing.

Damages for Electrical Shock.

In March last, while two men were taking a constitutional in Innsbruck, they discovered a telephone wire hanging down to the ground, when one of them picked it up and promptly yelled for assistance. His friend came to the rescue, knocked the wire out of his hand with a stick, and received a shock which rendered him unconscious. On recovering, he found that the picker up of unconsidered trifles was dead. A court of inquiry has now been held, at which three of the officials of the local electric lighting company were charged with culpable negligence. It appears that they had been warned several times that telephone wires above their conductors were broken, but no attention had been paid to the matter. The telephone wire in question had fallen across the conductor, resulting in the accident. One of the officials has been sentenced to one month's imprisonment, the second to four months' imprisonment, and the third has been discharged. In addition, an indemnity of 100 florins has to be paid to the injured man. Nothing has been awarded to the relatives of the dead man. It therefore appears that in Innsbruck it is less expensive to kill a man than simply to knock him down.

The English Language in the United States.

There has been, from time to time, serious talk in England of the reform of English orthography. The word is a misnomer in relation to the English language, for there is nothing orthographic in it. No language, except perhaps the Etruscan, was ever reduced to such phonetic decay. The simplest and most easily acquired, as a spoken language, of all European tongues, its spelling brings the foreigner to despair. It is impossible for any man who has learned the sounds given to the letters, and acquired them in the highest possible exactness as elements, to go on from that and learn to talk the language so as to be generally understood. This is a disgraceful fact, explain it how we may. To say that our language is the simplest of the European tongues in its grammar, in its construction of phrases, and especially in its inflections, is to claim what no one contests; and that it is the easiest to learn is a common remark by those who have studied it; but coupled always with the qualifying criticism that the written word gives but a poor indication of the pronunciation. Make it phonetically correct, and it becomes the easiest language to acquire in the world. This is for the foreigner. For ourselves, however, there is a kinder service in the elementary education of our children. As this is now carried on, it requires in many cases two or three years for a child to learn to read, and, in not a few, many years to master the spelling of the language. By a phonetic system this time is reduced, for any language, to six weeks on an average. The suggestion of the Americanization of the English language carries with it, as the logical consequence, a radical reform, which the insular mind is too conservative to accept, but which will, when accepted by the expanding branch of the race, so facilitate the acquisition of the language that no excuse will remain for the construction of a new universal speech; and it will at once establish the position of our tongue as not only the simplest in construction and the widest in extent, and, therefore, the most useful, but as the most easily acquired of all human languages. To this end, however, the reform must be radical. It is trifling with the subject to throw out a useless *gh* here and a superfluous *m* or *l* there; not only must the useless be eliminated, but the incorrect and inexact must be made correct and exact; there must be no two characters for the same sound, or two sounds for the same character. The change must, therefore, be radical in character, but conservative in form. The means of combining these conditions is furnished by the Merington alphabet. For the silent letters it employs italics; for the sounded vowels, accents; and for sounded consonants, modifications of the form so slight as not to offend the accustomed sense, while they convey to the beginner all that is requisite in the indication of modification of sound. The printed page, therefore, corresponds so nearly to

the present form that the eye is not offended, the history of the language is kept intact, and the books already printed will have only a slightly archaic character to those who follow us, while the words once learned in the new character will be perfectly well known in the old. That afterward the progressive reform shall proceed little by little to throw out the useless letters, and insist more forcibly on the differentiation of the modified, we cannot foresee or provide for or against. What is certain is that a reform will come when the desire for it has reached the requisite strength; and the longer that reform is delayed the more reckless of conservative conditions it will be, and the more our immediate successors will have lost. And, after all, the changes will be only the putting of what we now get in our dictionaries into our text books. With this change, however, an intelligent foreigner can learn English in six months, not only, as now, to read it, but to be able to speak it intelligently and correctly—an accomplishment which is usually the result of years of study.—*Century*.

Wonderful Speed of Atlantic Liners.

The highest recorded speed on the Atlantic as an average for the whole passage is 21.9 knots per hour, performed by the Cunard line steamer *Lucania*. This has now been nearly equaled by her sister ship, the *Campania*, which has just made the passage from New York to Queenstown in 5 days, 13 hours, 8 minutes over a total distance of 2,905 knots, her average speed having been 21.82 knots per hour.

Wonderful Speed of a New Torpedo Boat.

The Havock and the Hornet proved themselves able to do—one a little over 27 knots, the other a little over 28; but the Daring, built by Messrs. Thornycroft, of Chiswick, beat all records at her trial on the Maplin Sands measured mile, June 23, and attained the unexampled speed of more than 29½ knots. The run was made against the tide, moreover, and the Daring all the time was blowing off steam hard, as though she might, if it had been thought necessary to press her powers to the uttermost, have put on certainly another half knot to her top speed. Having, however, as it was, beaten all records so triumphantly, Mr. Thornycroft preferred for the occasion to let well alone and rest on his laurels. There was no possible doubt about the performance, for it was independently checked point by point by the Admiralty inspectors sent out in the Daring to report officially on the run, as well as by the special recording instruments set up on board, and by a number of experts, including Sir Frederick Bramwell, who watched the behavior of the Daring, chronograph in hand, with the closest interest. The exact figures for the record-breaking run were—from sea mark to sea mark, constituting the Admiralty measured mile—time, 2'3 minutes; speed, 29'268 knots; revolutions of propellers, 395.

There were three high speed trial runs on the measured mile in all, after a series of progressive trials to time the mile at various revolutions of the propellers. The Daring, by the way, is a twin screw vessel. The records of the first two high speed trial runs were: No. 1. Against the tide—time, 2'76 minutes; speed, 28'214 knots; revolutions, 383. No. 2. With the tide—time, 2'6 minutes; speed, 28'571 knots; revolutions, 385. The final and record-breaking run of 29½ knots, or 33½ miles per hour, was made against the tide, with a slight sea, and against a strong breeze. In spite of the tremendous pace, the vibration of the little vessel, as she literally tore ahead through the water, was practically insignificant, and the Daring could have fought her guns throughout without inconvenience to steadiness and accuracy of aim.

The Daring's trial trips were carried out under the personal supervision of Mr. John Thornycroft, Jr., and Mr. S. Barnaby, and among those present on board to witness the day's work were Sir Frederick Bramwell, Mr. H. O. Arnold-Forster, M.P., Professor Crookes, F.R.S., Professor Vernon Boys, Mr. J. T. Thornycroft, Sr., who himself designed the Daring, and Mr. John

Donaldson. The brilliant result of the day's performances proved, it was announced, more successful than even the builders of the ship had quite expected, and surprised them not much less than it astonished every one else who had the good fortune to be on board the Daring.

Photography Without a Camera.

There are many who would "take pictures" were it not for handling of chemicals and possible staining of fingers which the development of the image on the plate involves, and the labor of carrying a camera and the necessary "traps." But photography offers a wide field for recreation and is gracious to the humblest of its votaries, as well as to those whose dainty fingers may not be soiled by contact with pyro and other dark-room "messes." It is not necessary to have a costly "box," or an expensive astigmatic, double back-action telephotoscopic objective to get lots of pleasure out of one of the many stages of photographic work. With an ordinary 50 cent printing frame, a sheet of clear glass to fit it, a bottle of prepared toning solution, a package of printing-out paper and a pin, it is easy to make a fine collection of pictures. Fabrics, laces, leaves of trees, certain flowers and other things can be reproduced, and a little artistic handling will accomplish surprising results.

All such reproductions will give a white picture on a black ground. For laces, except of the thinnest, most cobwebby sort, it is necessary to exercise some care in handling. Lay the frame face down, with the back out. Put in the glass, and then lay the lace you wish a picture of on the glass, being careful to see that it is smooth. Then put in the paper, film side to the lace, and then the back goes in place, and is fastened by its springs. The pin is to be stuck in a corner on the face of the frame, standing straight up, and when the frame is held so that the pin casts no shadow, the sunlight is falling squarely on the lace and the paper. When the paper not covered by the lace is black, take out the sheets and follow the directions on the bottle of toning solution.

In reproducing leaves it is well to expose them to direct sunlight for some time before placing them in contact with the sensitized paper, in order to be sure there is no moisture on them, dampness having a bad effect on the paper. For greater convenience the leaves are sometimes fastened to the glass in the frame. Skeleton leaves, which are often found in the woods

and are caused by the slow decomposition of the epidermis, give a beautifully delicate lace-like picture by this process. These skeleton leaves can be prepared by spreading the perfect leaf over some smooth, soft surface, and gently striking it with a soft brush. The framework of the leaf will soon be left clean and entire.

One of the beauties of this method of making pictures is the wide scope given to taste and skill in the matter of selection. The numerous contact and printing-out papers, the carbon, bromide and platinotype processes, are all available, and each in turn is susceptible of variation and change until a bewildering variety of prints in different colors and styles can be produced. The simplest of all, however, is the ferro-prussiate, or common blue-print. While this does not always give such exceeding sharpness of line as some picture makers seem to think indispensable, the fact that all the treatment necessary is a thorough washing in clean water, letting the print, after being pressed between blotters, dry in the sunlight, is a strong argument in its favor.

The question of expense need hardly be considered. The first outlay for a 4x5 inch picture would be less than \$1.25, and that would supply material enough for twenty-four blue-prints, after which the running expense of the plant would be almost nothing.—*N. Y. Tribune.*

Sir Henry Layard.

The Right Honorable Sir Austen Henry Layard, explorer, archaeologist, diplomat, and art critic, died at his London residence on the 5th of July, after an illness of several weeks. He was born in Paris in 1817. After studying law he started on an exploring tour in 1839. The British Museum owes some of its chief treasures to this tireless explorer. His works on Nineveh gave him an enviable reputation, and as they were charmingly written, were extensively read both in Europe and the United States. Sir Henry's edition of Kugler's "Italian Painting" is a very authoritative work. He was connected with the British embassy in Constantinople from 1849 to 1852, and was Under Secretary for Foreign Affairs in 1852 and from 1861 to 1866. In 1869 he was appointed minister to Spain. He was ambassador to Turkey from 1877 to 1880. He was Lord Rector of Aberdeen University in 1855-56. During the latter part of his life Sir Henry lived much of his time in Venice.

RECENTLY PATENTED INVENTIONS.**Railway Appliances.**

CAR FENDER.—William V. Cleary, New York City. This fender is normally held a little distance above the track, but may be instantly released from the platform, when it springs downward into close contact with the track, so that nothing can pass beneath it. It has an inclined front end, is made of a light framework covered with netting, and held to slide vertically on parallel shafts supported beneath the car, arms connecting the shafts with the fender, while there is a spring for depressing the arms, and a catch rod connected with one of the arms extending up through the car floor.

PILOT BAR LIFTER.—Peter G. Cotter, Yuma, Leonidas Holladay, Pima, and Ransom J. Duncan, Yuma, Arizona Ter. A cylinder connected with the steam or air supply is mounted at the front of the locomotive, in such way that its piston may either directly or through a cam be made to lift the pilot bar, the cylinder being capable of an oscillating or swinging motion to accommodate the movement of the pilot bar to either side, and the mechanism being under the control of the engineer in the cab. The improvement renders its unnecessary for the brakeman to mount the cowcatcher to make a coupling with the pilot bar.

CONDUIT ELECTRIC RAILWAY.—John H. Tyrrell, New York City. According to this improvement the slotted conduit has a metallic supporting tube with diverging flanges at its lower side, there being an open bottomed clamp embedded in insulating material within tube, the line wire being held by the clamp and projecting from the insulating material in such manner that easy contact may be made with the line wire, which is perfectly protected and insulated. Means are also provided for easily shifting the trolley from side to side, and the construction is such that the trolley may be easily disconnected and the brakes applied.

REFRIGERATOR CAR.—Ferdinand E. Canada, New York City. In this car a hatch is arranged in the roof above the ice crate, there being superposed air tight doors for closing the hatch and a recess frame rigidly secured to the top of the car over the hatch, while a lid made in two sections is hinged to the screen frame at the center. The arrangement is such that a low or high temperature is secured by means of a constant and natural circulation of dry air, the temperature being maintained with great economy.

Electrical.

TELEGRAPH REPEATER.—Alfred D. P. Weaver, Jackson, Miss. This invention relates to instruments to cause a message coming over one line to be repeated over another line without the aid of an intermediate operator. The improvement consists in the peculiar construction and arrangement of parts and of the circuits and their connections, the object being to cheapen and simplify the instrument, reduce the number of connections, economize the local batteries, reduce the liability of failure, avoid mutilation of signals, and enable it to be more easily understood by inexperienced operators.

MACHINE FOR TEACHING TELEGRAPHY.—Thomas M. Crepar, Clare, Mich. Upon a case having a slot in its upper side is a receiving instrument, there being also on the case a circuit breaker having an arm projecting through the slot, the arm being engaged by projections on a traveling belt, one end of which is supported in the case and the other end on adjustable pulleys outside of the case, the belt being driven by a clock mechanism. By this means telegraphy may be rapidly, accurately, and mechanically taught, the machine being adjustable for a greater or less capacity of words or characters, and for the desired speed.

Mechanical.

STOP MOTION FOR DOUBLING FRAMES.—Elias Richards and Robert Lucas, New Orleans, La. This invention relates to spinning machinery, and comprises two rollers between which pass strands, slivers, or sheets, and locking devices with movable and stationary portions for holding the rollers, the movable portions normally locking with the fixed portions, and being held in disconnected position by the strands, slivers, or sheets, in such a manner that, on the breaking of one of the strands, slivers, or sheets, the rollers will be held immovable. This stop motion is automatic, and prevents single strands from passing through the drawing rollers in case one of the strands breaks.

Agricultural.

PULVERIZER AND HARROW.—Albert D. Powers, Owensboro, Ky. In this machine rows of teeth are located at the front and rear of a wheel-supported frame, the teeth being actuated from the same driving mechanism and alternately operated, being raised by the driving mechanism and dropped by gravity. The teeth are so shaped that the front ones act as a series of hoes and the rear teeth act in the capacity of a rake. All of the teeth may be readily raised from the ground when the machine is to be moved from one field to another. A construction is also provided for which will enable the machine to pass over young plants and cultivate the ground at each side of the plants.

Miscellaneous.

PNEUMATIC GRAIN CONVEYER.—Frederic E. Duckham, Millwall Docks, London, England. This is an improvement on a former patented invention of the same inventor, of an apparatus for loading and unloading ships' cargoes, and consists in the combination with oscillating two-chambered air lock delivery boxes of pneumatic apparatus working by exhaustion, with means whereby the conveyance of grain is effected by a current of air under pressure, the means comprising a closed chamber into which the air lock delivery box discharges, supplied with air under pressure and containing a nozzle with air supply sleeve immersed in the grain and connected to a conveying pipe leading to the place of delivery.

PNEUMATIC GRAIN CONVEYER DELIVERY APPARATUS.—This is a further patent of the same inventor for an improvement to cause equilibrium of air pressure to be automatically established between the ex-

hausted hopper and the chamber of the air lock delivery box about to be filled therefrom before the chamber arrives at the filling position. This invention is also an improvement on a former patented invention of the same inventor.

SHOE FASTENING.—Thomas U. Walter, Huntington, West Virginia. The shoe body, according to this improvement, has an upper flap with button holes, each having a downwardly and outwardly projecting keeper portion, while an elastic member so connects a button-holding flap with the shoe body that when this flap is pulled on it moves diagonally outward and upward. The heads of the buttons on the button flap are adapted to register with the inlet portions of the button holes in the upper flap when the lower flap is pulled upward. The fasteners are all engaged or disengaged by a single movement of the fastener holding flap portion of the shoe.

HEATER.—Harriet C. Cowdrey, New York City. This is a simple device in which a lamp is employed to heat a hall or other apartment, without vitiating the air. A shell having a series of openings is provided with a shield fitting tightly around the lamp, the shell having near its lower end a row of openings for the admission of air, while openings near its upper end permit the egress of the heated air. A pipe from near the upper end of the shell leads either to the chimney or out of a window.

ICE CUTTER.—John G. P. Putnam, Claremont, N. H. In a main frame is journaled a driving shaft, with which is geared a propelling shaft carrying propelling wheels and a shaft carrying a circular saw, there being hinged runners for raising and lowering the main frame. As the operators turn the main driving shaft a simultaneous forward movement is given to the frame and a rotary motion to the saw, to cause the latter to cut the ice as the machine moves forward.

BUCKSAW FRAME.—Thomas C. Knowles and William J. Adams, Newton, Mass. The frame proper, according to this improvement, is made of a single flat piece of steel, bent in proper shape to form a handle bar, middle portion, and end bar. On the upper portion of the handle end a second handle is adjustably held by a set screw, a suitable handhold being also secured on its lower end. A light and comparatively strong saw frame is thus afforded, which may be made to serve in cutting logs of considerable thickness.

PIPE HOLDER.—John B. Davis, Moline, Ill. This is a device for holding a stove or furnace pipe securely in the chimney, and also to fasten the sections of the pipe in position to form a gas and dust tight joint. A bar secured to the pipe projects between the pipe and a thimble, the bar having an inwardly extending hook receiving the pipe and an outwardly projecting lug extending through the thimble.

RUBBER HAND STAMP.—Robert S. Hall, New York City. This stamp has a flexible rubber backing of cellular structure, its walls connected at all points of intersection and juncture with the outer margin, while the walls and the outer margin have transverse perforations, whereby a lighter and more elastic

backing is afforded, giving the necessary resiliency and lessening the cost.

MARKING TOOL.—Louise Schaefer, Oneida, N. Y. This is an inexpensive and simple tool having a spur wheel adapted to penetrate the fabric to be marked and pick up pigment from a marking board on the under side of the fabric, and having also a chalk holder in which chalk is held adjustably to mark the upper side of the fabric over which the tool is run. The spur wheel may be placed in advance of or behind the chalk holder, or the wheel may be dispensed with and the chalk holder alone used.

REGISTER FOR BASKETS, ETC.—Austin B. Culver, Westfield, N. Y. This improvement is more especially designed for registering the count of baskets of grapes as they are passed into the cars, lessening the labor and saving the time of the operator, while insuring the keeping of a properly tally. Combined with a sliding and spring-supported table is a dial carrying a ratchet wheel, a lever loosely pivoted and having a pallet head engaging the ratchet wheel, and a spring-pressed pitman connecting the lever with the table.

WATER CLOSET SEAT.—Patrick J. Cahill, Utica, N. Y. This is a seat which may be quickly and conveniently fitted upon the bowl, the spud of the bowl and the spud coupling being utilized as fastening devices, or an equivalent of the spud, and the seat being so connected with the bowl that it is adjustable to any size bowl. The construction is such that when either the seat or its cover is opened, partially or entirely, the hinges will not be placed under undue tension.

SASH WEIGHT.—George S. Sergeant, Greensborough, N. C. This invention provides a method of connecting and interlocking two or more short or light weights to form a heavier weight, no bolts, rivets or knotted cords being employed for connecting the weights, and the sectional weights being as cheap as the old style single weights. All of the weights, in each of several forms, may be used as taken from the mould, and a sectional weight of given diameter weighs almost the same as a solid non-sectional weight of the same length.

PENHOLDER.—Edwin P. McCollom, David City, Neb. The holder proper, according to this improvement, is formed of a rod having a head with intermediate return wings with a pen seat between them, while a sleeve sliding on the head incases and compresses it to clamp the pen. The pen may at any time be conveniently discharged from the holder without soiling the hands or it may be incased and put in the pocket when not in use.

TENT AND SUPPORT.—Patrick F. Noonan, Fort Stanton, New Mexico. This tent has a central tubular support capable of use as a stove pipe, dispensing with the ordinary pole and tripod. The cap is so arranged as to obviate the necessity of its removal, and to prevent leakage in wet weather, the improvement providing for a stove in the center of the tent and the utilization of the greatest possible portion of the space.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.