ALLEN'S PORTABLE COMPRESSION RIVETER.

This riveter is principally intended for beams and girders for bridge building, and forms the rivet head by compressing the end of the rivet into a suitable die. The bars, turning on a fulcrum, contain at one end the dies, and are connected at the other end to a toggle joint, to the center of which the piston rod of a pressure cylinder is attached. The arms C and D, are made interchangeable, so that the machine with arm, C, as represented in Fig. 1, will straddle the edge of girders or beams having six inch angle irons on each side, and when arranged with the lever. D, as represented in Fig. 2, plates may be riveted on to six inch channel iron.

The pressure used in this machine is from fifty to sixty pounds, and the arms are made of sufficient strength to operate on one inch rivets. The weight of the machine complete is about seven hundred and fifty pounds. It can be operated by steam or air, but for the convenience of handling the machine air pressure is recommended.

In consequence of the peculiar construction and arrangement of the elbow or toggle joint between the power employed for operating the machine, and the hinged or pivoted arms which carry the dies, a small ten inch cylinder will produce, at the end of the stroke or when the dies are nearly closed, a pressure upon the rivet of about fifty tons, or about one ton for every pound of pressure upon the cylinder piston.

This machine is in use in the principal bridge and wrought iron works in the country.

Further information in regard to these machines may be obtained by addressing Mr. Henry E. Roeder, manager of Allen Portable Riveting Company, 304 Broadway, New York city.

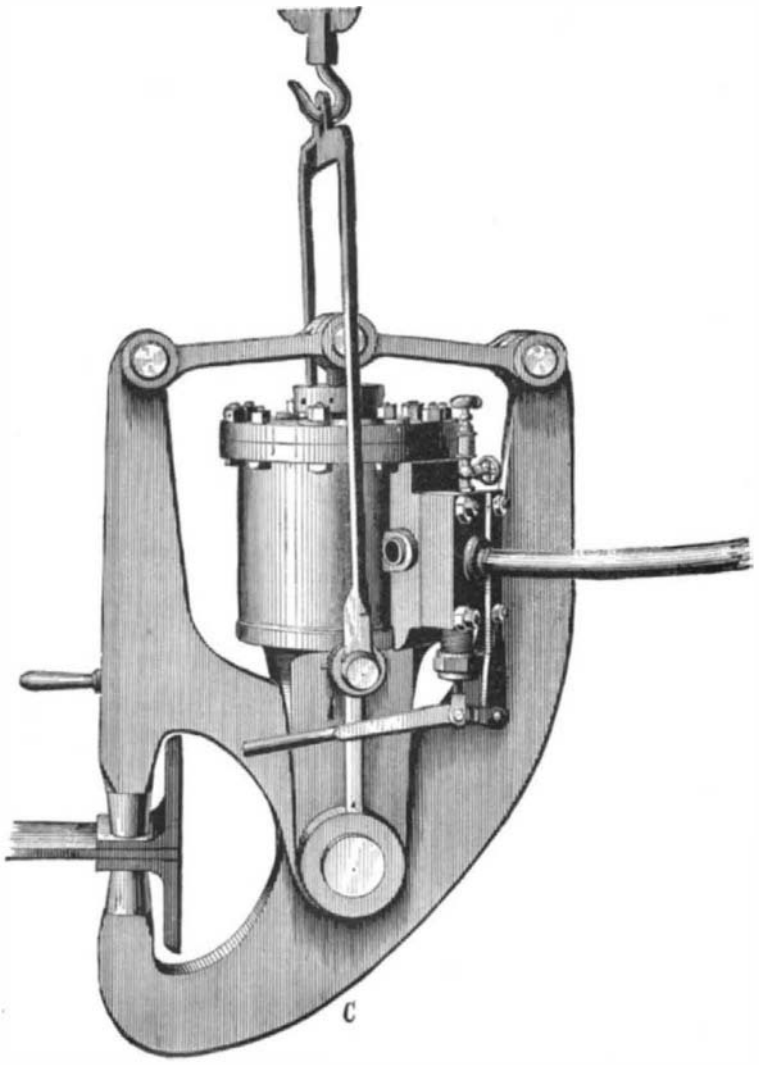


Fig. 1.—COMPRESSION RIVETER.

The Year's Work of the Signal Corps.

In his annual report to the Secretary of War, Gen. Wm. B. Hazen. Chief Signal Officer, summarizes as follows the work done by the Signal Corps during the past year:

"This year has been distinguished by additional progress and by decided improvement, which I will briefly recite: The establishment, under your sanction, of a permanent school of instruction at Fort Myer, Va.; the raising of the standard of the *personnel* of the Signal Corps; the systematization of the duties of the Signal Service; the preparation of new instructions for observers of the service; the preparation of new and improved forms for the recording and preservation of meteorological data; the preparation of special bulletins for the press, containing weather information of public interest; the forecasts of weather, of hot or cold waves for periods exceeding twenty-four hours; the forecasts of 'northers' for the interior plateau; the adoption of a new storm signal (the cautionary northwest) for the interior lakes; the arrangement for increase of river service and wider publication of the international bulletin and the monthly weather review, with their accompanying charts; the increased information added to the farmers' and to the railway bulletins; the organization of a service for the special benefit of the cotton interests of the South; the extension of the special frost warning to the fruit interests of the country; the investigations into thermometric standards and into barometric standards; the preparation of new hygrometric tables containing correction for altitude; the revised determinations of the altitudes of Signal Service stations; the computation of monthly constants for the reduction of observed barometric pressures to sea level; the arrangements for original investigation in atmospheric electricity, in anemometry, and in actinometry, and in the last subject, especially with reference to the importance of solar radiation in agriculture and the absorption of the sun's heat by the atmosphere; the co-operation in an expedition to the summit of Mount Whitney, California; the determination of problems in solar physics in meteorology; the preparation of conversion tables for the English and metric systems; the co operation in the dropping of time-balls at Signal Service stations; the publication in quarto form of special professional papers; the offering of prizes for essays of great merit on meteorological subjects; the organization of State weather services; the new investigation of danger lines on Western rivers; the organization and equipment of two expeditions for meteorological observation and research in the arctic regions of America, one to be stationed at Lady Franklin Bay, the other at Point Barrow, Alaska, both co-operating in this work with a system of stations established in the polar region by international conference; the establishment of a system of stations of observation in Alaska; the arrangements for organizing a Pacific coast weather service; the display at the Paris Electrical Exposition; the experiments for improving newspaper weather charts: the increase since June 1 of telegraphic weather service, exceeding in value $34,000 per annum, without additional expense to the United States, and the extension and construction of military telegraph lines.

"One hundred new stations have been established in the cotton belt during the year, the total number of stations of observation in operation June 30, 1881, within the territory of the United States and maintained for the Signal Service being 296. Reports are also received from 17 stations established by the authorities of the Dominion of Canada; also from one at St. John, Newfoundland, and one at York Factory, British America. The cost of maintaining each full station of observation during the year, exclusive of the cost of telegraphing and the pay and maintenance of the enlisted men, has been $336.73, a decrease since the preceding year of $45.55 per station."

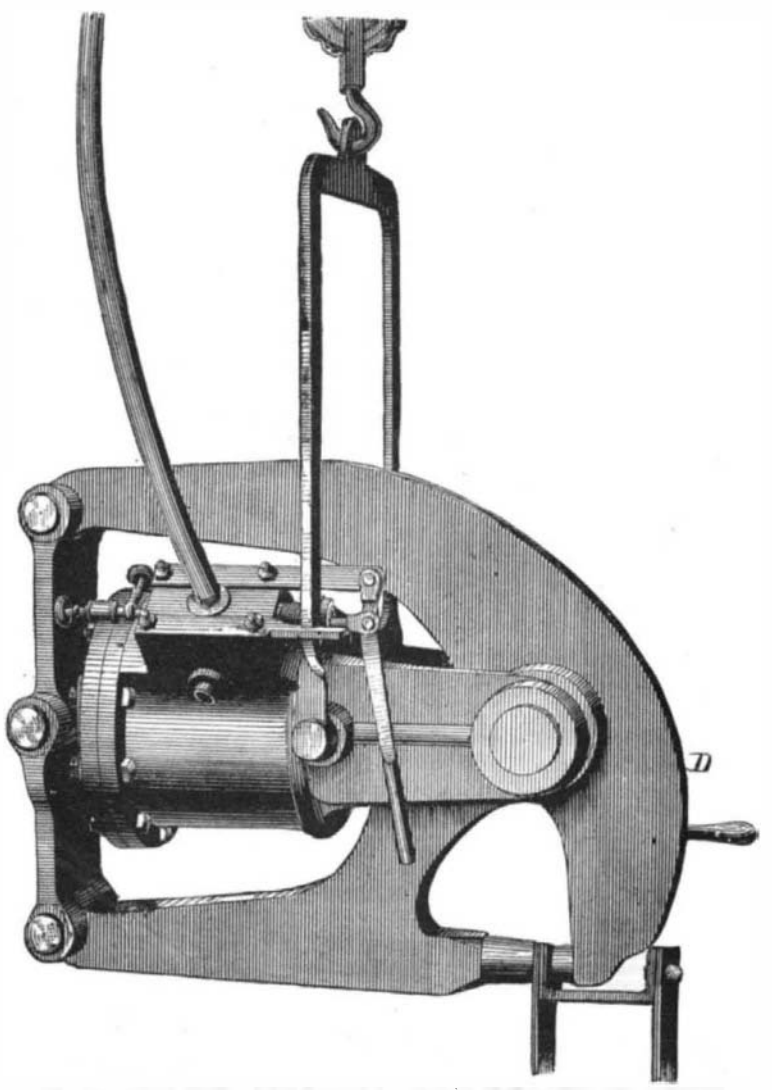


Fig. 2.—ALLEN'S PORTABLE COMPRESSION RIVETER.

MECHANICAL INVENTIONS.

An improvement in sewing machines has been patented by Mr. Jacob R. Scott, of Nyack, N. Y. The object of this invention is to insure uniformity in the movement of the presser bar by the upward stroke of the needle bar and secure uniform feed of the material. It is specially designed for use with the boot and shoe machines described in patents Nos. 232,559 and 233,560, so that they may be adapted conveniently for the sewing of hose, where no variation of thickness is required.

An improved carriage spring has been patented by Mr. Ronella L. Doble, of La Grange, Me. This invention relates to the use of a chord rod in combination with elliptical springs, and has for its object to strengthen the springs.

An improved machine for bundling kindling wood has been patented by Mr. William A. Allen, of Jersey City, N. J. This machine forms the bunch of wood into a cylindrical bundle, squares up the end of the bundle, and holds the wood in compact shape until it is tied.

An improved machine for grinding wood for paper pulp has been patented by Mr. Nicolaus Kaiser, of Grellingen, Switzerland. The invention consists in a grinding stone mounted on a suitable shaft and surrounded by a casing, with a series of boxes on the sides for containing the blocks of wood, which are pressed against the sides of the stone by a rack and pinion actuated by a weight, or by springs or hydraulic pressure, whereby the block of wood is converted into a wood pulp.

Mr. Michael Waters, of New York city, has patented a sensitive steam engine governor that will operate, when additional work is thrown on the engine, to instantly open the valves for the admission of a corresponding head of steam into the steam cylinder, so that the usual "slacking down" of the engine on such occasions shall be avoided, and economies in power or fuel and in time be thereby obtained.

Messrs. John L. Metcalfe and John T. Metcalfe, of Quincy, Pa., have patented an improved grain separator. In this machine, the bars of the rake bed connect with the upward incline from the thrashing cylinder by bars, arranged to form a trough, which greatly facilitates the early separation of the grain carried up by the straw. Combined with the main shoe is a supplemental shoe shaken at both ends and having a transverse slot in its bottom fitted with a roller and a comb, whereby a better separation of the clean grain and tailings is effected. There is also combined, with the fan head or fixed register plate, a detachable box bolted to the fixed head and forming the bearing for the revolving register plate, thereby greatly facilitating renewal and repairs. Combined with the elevator box and elevating belt is a screen shaken by said belt to separate sticks and other foreign bodies from the tailings, and provision is made in a convenient and efficient manner for connecting and disconnecting the straw carrier by the machine while in motion.

A very effective and simple machine for making tent pins has been patented by Mr. Friedrick W. Evers, of St. Louis, Mo. The invention relates to machines for finishing tent pins, that is to say, pointing them, cutting the notch, and shaping the head. In this machine the pins or stakes, cut to size and of wedge form, are first pointed by inserting them singly at their smaller ends, through a rest, into a hollow cutter head on one end of a revolving mandrel. They are then arranged side by side upon a sliding inclined bed, or endless apron, and passed at their larger ends under a pair of cutter heads, secured one in advance of the other on the opposite end of the mandrel, and having a presser bar between them to hold the pins down. The cutters on these cutter heads give the required bevel to the heads of the pins, and cut the inclined notch, also bottom of the notch, thereby completing each pin.

A very valuable improvement in boot and shoe lasting machines has been patented by Mr. Solomon B. Ellithorp, of Rochester, N. Y. This invention is an improvement upon a machine previously patented by the same inventor, and consists in an adjustable construction of certain parts, whereby the machine is more readily adapted to shoes and boots of various sizes. The seat for the heel of the last, and the seat for the toe of the last are both adjustable vertically and longitudinally toward or from each other. Likewise the clamps, which are provided with eccentric levers for adjusting the gripe of their jaws on the leather, are connected with the templet by vertically adjustable hooks, and the templet is adjustable in direction of its length by the levers and devices which control it. Furthermore, the pressing screw bolt, which holds down the last on its seat, is adjustable laterally as well as vertically, so that its pressure may be applied to any part of the bottom of the last.

Mr. Horace L. Kingsley, of Racine, Wis., has

patented an improved platform gear for wagons. The invention consists in a platform gear into which the two outside bars are made of metal and U-shaped in their transverse section, and are provided at their ends with plates bolted on or between their walls to the head block and front brace bar, wooden or other filling pieces being inserted in the outside bars. This construction furnishes a platform gear of light and durable character, and a rigid frame is formed having the upper surface of its bars level for receiving the bearing circle.

Mr. Stephen D. Engle, of Hazleton, Pa., has patented an improved pantograph engraving machine for engraving on metal, for reducing maps and drawings, and similar work. This machine can do almost any kind of engraving from a pattern. It enables an unskilled person to do a good job of engraving.

Messrs. Robert Barber and Burchard H. A. Siefken, of Omaha, Neb., have patented a machine which will separate from auriferous sand or earth the fine as well as the larger particles of gold with the use of only a small quantity of water. The invention consists, principally, of a washing tank communicating with a tailing tank, in which revolves a wheel provided with pivoted or swinging scoops or buckets for removing the tailings without unnecessary waste of water, the washing tank being provided with suitable conveyers, riffles, and amalgamated plates.

An improved station indicator has been patented by Mr. Virgil H. Sprague, of Greene, Me. The inventor makes use of endless belts or chains, carrying the name cards or plates, and fitted with mechanism for giving step-by-step movement to the belt, whereby the cards are successively exposed.

An improved station indicator has been patented by Mr. Zebina M. Hibbard, of St. Louis, Mich. This invention is designed as an improvement on the station indicator for which Letters Patent Nos. 209,122 and 214,776 were issued to the same inventor October 22, 1878, and April 2, 1879, respectively.

An improved type-writer has been patented by Mr. George H. Herrington, of Wichita, Kan. The object of the invention is to furnish type writing or printing machines occupying small space and adapted for use in banks, stores, and other places for registering time, amounts, and other information in connection with money received and paid. A dial and a type wheel operated by a stem carrying a hand for indicating on the dial the position of the type wheel are used. Combined with these is a paper-carrying cylinder fitted for rotation and transverse movement. The dial, type wheel, and rotating mechanism are all carried by a ring-shaped case having a tubular boss and connected by a knuckle joint with the top of a post, whereby the case may be swung to and from the platen. The shaft which operates the rotating mechanism extends through the boss of the case and is manipulated by a knob outside of the latter. This shaft or stem is moved longitudinally to set the type to and from the paper and to move the cylinder carrying the paper the necessary space between the letters. An elastic band serves to hold the types in place and to raise them after an impression.

IMPROVED DINNER BUCKET.

In the dinner bucket shown in the engraving, the body, A, tapers and its ends are rounded. In one end of the body there is a vessel, B, for holding fluids, such as coffee, tea, and milk. In the other end of the body there is a box, C, having one or more compartments for holding articles of food, such as meats and preserves. These two vessels are removable from the bucket.

The cover, D, is crowned, forming a chamber which is closed by the plate, E. This chamber is used for holding articles that may be safely carried either side up. This forms a very compact dinner bucket of very convenient form. It is the invention of Mr. John B. Schneider, of St. Jacobs, Ill.

Photographing in Theaters.

In one of the new theaters now approaching completion there will be a photograph gallery, where the portraits of visitors can be taken by lime light. This is a capital idea, and many people, especially ladies, will doubtless avail themselves of the opportunity to be taken in evening dress, the facilities for which purpose are not at present great. A photograph is pre-eminently a thing done in a hurry and on the impulse, and few people would send a ball dress to the photographer's the day before and put it on by daylight in his boudoir; while the other alternative, of driving in evening dress down street at noon, is still more distasteful. Quite naturally you go from the dinner table to the theater, and in the same dress from your box to the operating room.—*London Court Circular.*

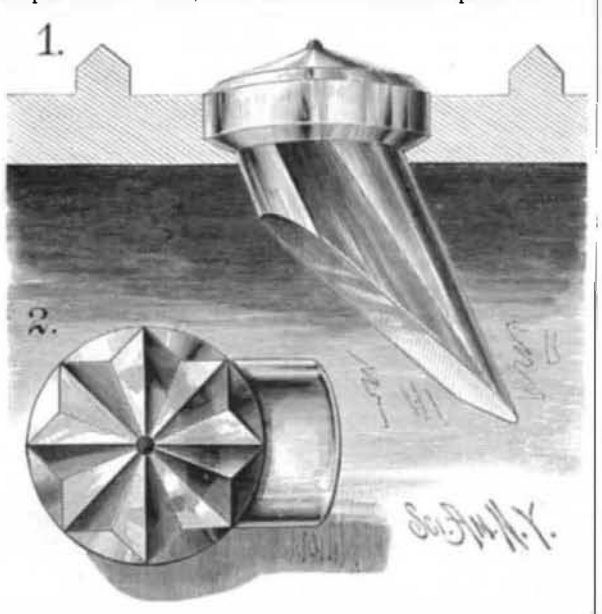
A NOVEL TOOL CHEST.—A burglar recently arrested in Leadville, but discharged for lack of evidence, is now limping about Colorado with the tools of his profession neatly concealed in his wooden leg. This convenient receptacle was not discovered by the jailer until after he had received instructions to release his prisoner.

TILE FOR ILLUMINATING PURPOSES.

The engraving shows a novel illuminating tile for pavements, vault covers, and similar purposes. The object of the improvement is to increase the quantity of light admitted and to diffuse it over a large surface.

The invention consists in an illuminating lens of semi-prism form having a very large reflecting surface.

The engraving shows a portion of a vault or pavement plate or frame fitted with the illuminating lens made of crown glass. The lens or semi-prism is formed with a flanged top portion to fit a flanged opening in the plate. The upper surface is formed with a raised center and with radiating grooves having beveled sides to increase the extent of surface. The beveled surfaces being depressed are protected from abrasion. The upper surface may, however, be of simple conical form, or in certain situations a plain flat surface may be used. The downwardly extending portion of the lens is a semi-prism having an inclined flat reflecting surface and an inclined back face that may be flat or nearly flat, convex, or concave. The angle of the flat surface will vary according to location, and is of the first importance. For a pavement light it should be slightly less than forty-five degrees to the plane of frame. It is lengthened by the inclination of the back surface from the head to the lower point, so that while only a limited amount of material is used, thereby saving weight and loss of light, an extensive reflecting surface is obtained at the proper angle.



PENNYCUICK'S ILLUMINATING TILE.

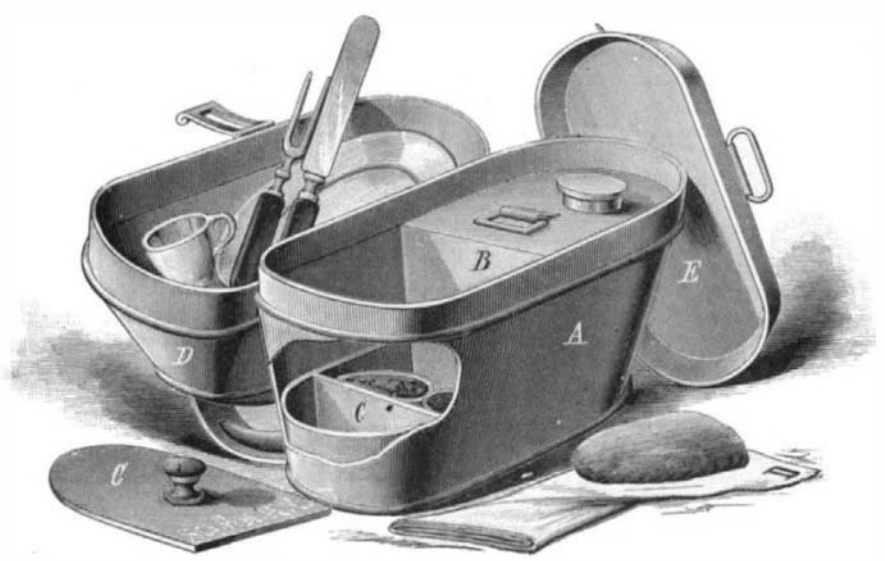
At the center of the upper surface there is a metal spur which projects slightly and protects the surface. The iron frame is formed with knobs or projections between the tiles, so that the feet of persons walking over the frame shall be kept entirely off the lens, and slipping will be prevented.

This invention has been patented by Mr. J. G. Pennycuick, of Boston, Mass.

The Names of the States.

The Hon. Hamilton B. Staples read a paper at the annual meeting of the American Antiquarian Society in Worcester, on the 21st inst., in which he discussed the origin of the names of several of the States. His conclusions were as follows:

New Hampshire gets its name from Hampshire, England. Massachusetts is derived from an Indian name, first given to the bay, signifying "near the great hills." Rhode Island has an obscure origin; the island of Rhodes, the "Island of the Roads," and a Dutch origin, "Red Island," were mentioned, the first seeming to have the best historical support. Connecticut is an Indian name, signifying "land on a long tidal river." New York, New Jersey, Pennsylvania, Delaware, and Maryland were passed over. Virginia, the Carolinas, and Georgia have a royal origin. Maine was named from the fact that it was supposed to contain the "mayne portion" of New England. Vermont has no especial question, except that it is claimed to have first been an alias—New Connecticut, alias Vermont. Kentucky popularly signifies either a "dark and bloody ground," or a "bloody river," but its origin signifies "the head of a river," or "the long river." Tennessee comes from its river, the name being derived from the name of an Indian village on the river—"Tanasee." Ohio is named after an Indian name, signifying "something great," with an accent of admiration. Indiana comes from the name of an early land company. Illinois comes from the Indian—the name of a tribe. Michigan is claimed to mean "lake country;" it probably came from the name of the lake, "Great Lake," which bore this name before the land adjacent was named. Louisiana is from the French. Arkansas and Missouri are Indian, the former being doubtful; the latter is claimed to mean in its original "muddy water," which describes the river. Iowa is also Indian, with doubtful meaning. Texas is popularly supposed to be Indian, but may be Spanish. Florida is Spanish, "a flowery land." Oregon has a conjectural origin. It is probably Indian, but a Spanish origin is claimed. California comes from a Spanish romance of 1510. Nevada takes its name from the mountains, who get theirs from a resemblance to the Nevadas of South America. Minnesota is Indian, "sky-tinted water." Nebraska is variously rendered "shallow water" and "flat country." Kansas is from an Indian root, Kaw, corrupted by the French. Mississippi is "great water," or "whole river." Alabama is Indian, the name of a fortress and a tribe, signifying, as is claimed, "here we rest."



IMPROVED DINNER BUCKET.

Southern Woods and Ores at the Atlanta Exhibition.

One of the notable exhibits at the Cotton Fair is a fine display of Southern woods, both rough and polished. It includes the sweet gum, a light colored wood, often worked up for coffins; the tupello, a tree that cuts like cheese, but cannot be split, used by the negroes for corks; the famous (and infamous) palmetto; the Spanish bayonet, with stiff blades sharp as needles and serrated edges; the swamp cypress, with its pointed excrescences three feet high springing from the root; and the curled pine, which takes a grain polish like the curled maple, but infinitely more vivid and beautiful.

The Georgia saw mills—there are eight hundred of them in the State—have sent in some colossal pine logs, one of them a sylvan monarch, straight as a needle, seventy feet long, twenty inches in diameter at the smaller butt, and some four feet thick at the base.

In the same building are two collections of Southern minerals, chiefly from Georgia, remarkable for their variety, utility, and number. Among them are fine specimens of copper and copper ore, sheets of clear mica a foot square, coal blocks weighing half a dozen tons, crystals, stalactites, and gold nuggets, one of the latter worth five hundred dollars.

Odd Things that have been Found about the Wrecks of Vessels.

The Coast Wrecking Company has in its office, in this city, a curious collection of relics from old wrecks and other odd bits taken from the sea. The collection embraces quaint pieces of furniture, explosive shells, and shells of the ocean, shreds of ladies' dresses, rude weapons of savage races, huge starfish, and many curious things, the use and purpose of which are still unknown. The collection contains the broken bell brought up from the ill-fated steamer Atlantic, of the White Star line, which was wrecked on Golden Rule Rock, on the Nova Scotia coast, on April 1, 1873, with a loss of 557 out of 1,007 souls on board. There is also a rusty, hiltless sword, dug out of the sand eight years ago, near the hulk of the British bark Thistle, which was lost on Squan Beach, N. J., in 1811. There are also several bottles of sweet oil, holding a pint and a half each, with the original corks intact, and the oil as clear as crystal, taken in November, 1877, from the wreck of the British bark Robert, which went down in 1844, with a cargo of lead and oil, and five of her crew, off the place where Atlantic City now stands. There is a South Sea Island canteen, ingeniously constructed of cocoanut shells, which was fished up from a wreck in seventy feet of water on the coast of Maine; also a mussel shell firmly embedded four inches in depth in a well which was found one hundred and forty feet above the sealevel on the Jersey coast; also a pelican's skull and bill, measuring two feet from back to tip (making an excellent though wide dipper) which was found near the wreck of the bark Robert Fletcher, on the south beach of Long Island, and which is said to have been used to bail out the boat by the crew when endeavoring to escape. The jaws of a shark, killed on the South Carolina coast, which have been preserved, can easily be passed over the shoulders and down the body of a full-grown man. One of the most curious relics is a lamp chimney taken from the remains of the ironclad Merrimac. Oysters three inches long were found attached to the glass, and four large oysters which had grown about the