

The World's Shipping.

The following figures show the condition of the merchant marine of the different countries, including steam and sailing vessels, at the end of the last year. The first table gives the gross and net tonnage of the steam vessels.

	Number.	Tonnage, Gross.	Tonnage, Net.
England.....	5,453	11,094,000	6,759,000
Germany.....	900	1,873,000	1,167,000
France.....	526	986,000	517,000
America.....	551	971,000	673,000
Norway.....	657	673,000	417,000
Spain.....	377	552,000	350,000
Japan.....	332	456,000	283,000
Italy.....	258	443,000	278,000
Russia.....	435	408,000	252,000
Denmark.....	318	389,000	238,000
Holland.....	224	366,000	251,000
Sweden.....	497	340,000	232,000
Austria.....	167	335,000	213,000
Belgium.....	73	147,000	103,000
Brazil.....	211	140,000	90,000
Greece.....	103	140,000	91,000
Turkey.....	79	78,000	47,000
Argentine Republic.....	68	52,000	38,000
China.....	38	56,000	36,000
Portugal.....	29	54,000	33,000

By adding those of several of the other powers not given, a total of 11,456 vessels of more than 100 tons gross is reached, making a total of 19,771,000 tons gross, or 12,165,000 tons net.

The following table shows the number and tonnage of the sailing vessels.

	Number of Vessels.	Net Tonnage.
England.....	7,706	2,662,000
America.....	3,497	1,292,000
Norway.....	2,306	997,000
Germany.....	981	548,000
Italy.....	1,557	492,000
Russia.....	2,455	473,000
France.....	1,371	369,000
Sweden.....	1,423	277,000
Turkey.....	1,380	262,000
Greece.....	972	197,000
Spain.....	1,032	152,000
Denmark.....	752	138,000
Holland.....	663	118,000
Brazil.....	364	80,000
Chili.....	132	60,500
Portugal.....	237	60,430
Austria.....	142	49,300

By adding several of the smaller powers, a total of 27,867 sailing vessels is reached, the list including those of more than 50 tons capacity. The total tonnage, net, reaches 8,347,600 tons.

A Prize for Aeronauts.

We have already referred to a very substantial prize for a practical airship which has been offered in France. We have received some additional particulars regarding the same, furnished by our Paris correspondent. The prize is offered by M. Deutsch, a Parisian, who has always been specially interested in aeronautics and automobiles. After mature consideration, M. Deutsch decided to encourage the building of dirigible balloons which would be propelled with light motors. The prize is 100,000 francs, or \$20,000, and it is offered to anyone, irrespective of nationality, who will make a trip in a balloon or airship from the park of the Aéro Club, or from Longchamp, to the Eiffel Tower and return to the point of departure in half an hour. The prize must be won within five years. The Aéro Club will have charge of the competition. The prize will be known as the "Grand Prix de l'Aéro Club." Aeronauts who enter into this competition are expected to provide new inventions to enable them to accomplish this feat, and dates will be arranged for a practical test of such apparatus as is considered good. The conditions of the prize are now being formulated, and we hope to be able to publish them at an early date.

Lithographic Stone in Germany.

The territory in and around the village of Solnhofen, in the Kingdom of Bavaria, forms the world's chief supply of lithographic stone. The quarries near Montpelier do not compare with those at Solnhofen. There are three villages surrounding the German quarries. They cover a considerable area, the greater part of which has not yet been worked out. It is often given out that the supply of Solnhofen stones is diminishing, but this is without foundation, and it would probably take about 200 years to exhaust the quarries. It is constantly rumored that lithographic stone beds have been found in other countries, but so far the stones have been of little value, and the present requirements of the art are that the stones must be very perfect, and many of the pieces which are gotten out at Solnhofen are laid aside as not coming up to the standard. They are sold to builders and are used for paving, etc. The strata of lithographic stone does not lie deep in the ground. The stone lies in layers and have simply to be taken carefully from the earth. The majority of the deposit belongs to the communities of Solnhofen and Moersheim and, therefore, each homestead owner has a share in the ground. From time to time the

committees measure out a new stretch of land and divide it into lots, and each homestead owner gets his share. He can then either explore the ground himself, or sell his claim. After the ground has been denuded of its stone it again becomes the property of the community. One would naturally suppose that these communities would wax rich, but this is not the case, as they often undersell each other, and the result is that the profits have been modest. In January, of last year, a combination was formed and more satisfactory prices are now being received. The stone which is in the greatest demand is the blue or gray variety. They are the most costly, as they are harder and better for engraving and more impressions can be taken from them, and, being harder, they stand the polishing on both sides better than the other stones, and, therefore, are chiefly used for exportation to the United States, where double-faced stones which can be worked from both sides are desired. The Germans are wont to use the single-faced stones. The workmen in the village are highly skilled in getting out the stones and no bad ones are apt to leave their hands. The entire output is estimated at \$600,000 per year. The United States takes about a sixth of the stones.

The Current Supplement.

The current SUPPLEMENT, No. 1270, has many articles of unusual interest. "The Orang-Mannas—An Unknown Sumatran Tribe," is a profusely illustrated article showing the types of natives and their manners, customs and industries; "The Bollée Voiturette" is an elaborate article giving detailed illustrations of the working parts, such as the carbureter; "The Use and Abuse of Food Preservatives" is a timely article by Samuel Rideal. The number is illustrated by thirty-three engravings.

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RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

**PLOWSHARE.**—ELMER E. MORRIS, Sarcoxie, Mo. The object of the invention is to construct a plowshare so that it will be self-sharpening and so that the cutting edge can be adjusted forwardly and rearwardly and likewise in a vertical section to a limited extent. The share has an intermediate blade-section provided with a cutting-edge, and capable of being reversed. When the lower portion becomes unduly worn and dulled, the share can be reversed, so that the worn portion is brought to the top and the unworn top portion brought to position at the bottom of the share.

Electrical Apparatus.

**SWITCH.**—JAMES I. GUNTHER, Manhattan, New York city. The switch comprises a rotary part carrying a ratchet-wheel which can be engaged by a push-button. A spring-pressed impelling device engages the ratchet-wheel, and contact-plates are provided on the rotary part. By pushing the button, the ratchet-wheel is given a quarter-turn, the button being assisted by the impelling device. The circuit is then closed. To break the circuit the button is again pushed to give the wheel a quarter-turn. The switch is positive and quick in its action.

Mechanical Devices.

**MACHINE FOR PARING FEATHERS.**—JOSEPH LOCK, Brooklyn, New York city. The feathers are drawn over a bed constructed in sections vertically adjustable, one section being also laterally adjustable. A paring-wheel is mounted to revolve below the section of the bed, a portion of the periphery of the wheel being exposed at the space between the sections. A combined guide and pressure roller is movable to and from the exposed portion of the wheel. In operation it is necessary merely to raise the roller, place a feather upon the bed, drop the roller on the feather, and draw the feather out from the machine. The operation can be repeated very rapidly, and a large number of feathers can be properly treated in a short time.

**GLASS-PIPE-MACHINE.**—WILLIAM P. PARSONS and ANDREW TUTE, Albany, Ind. The pipe-machine comprises a mold in which a core moves, having longitudinal passages, one for conducting water and the other air under pressure. The air-passage leads out through the ends of the core. Compressed air is supplied to the mold below the lower end of the core. The molten glass is poured into the mold, and water is poured into the proper passage to keep the core cool. The core is then slowly raised and compressed air is admitted to the bottom of the mold, which, by filling the space left by the core, keeps the glass in shape while the core is being withdrawn.

**CHANGE-MACHINE.**—CHARLES H. ROW, Manhattan, New York city. This machine is provided with individual compartments for coins of different denominations, each compartment being independent of the others, and having a hinged section capable of exposing the interior, together with an independent extractor for the discharge of the coins. The coins placed in the coin receptacle automatically form a column. The receptacles are so mounted that, when touched, they will swing upon their axes in the direction of the coin-discharging

mechanism, which mechanism at such time forces a single coin out from the operated receptacle.

**KNITTING-MACHINE.**—MAX SALDIN, Manhattan, New York city. The invention is an improved attachment to straight knitting-machines, whereby mittens, sweaters, gloves, etc., can be knit so that either a singular tubular portion of the article or separate tubular portions can be knitted at the same time. For example, in a mitten, the wrist portion can be knitted, then the thumb and fingers simultaneously; or, in the case of a sweater, the body portion can be knitted, then the two sleeves simultaneously, and, finally, the remaining body portion to complete the garment, with the crotch at the joint of the single tubular portion, and the separate tubular portions knitted and closed automatically.

Railway Appliances.

**CAR STEP.**—NELSON GRAY, Louisville, Ky. This invention is an improvement in car-steps of a type previously patented by Mr. Gray. The subject of the present invention is a folding car-step section, pivotally supported and provided with a platform-section arranged approximately at right angles to the treads of the steps and adapted to form an extension of the platform when the steps are adjusted out of position for use. The vestibule door is provided near its swinging edge with a depending portion arranged to bear upon the step-section and lock it in position for use. A latch is used by which to brace the vestibule-door in position to lock the step-section in position for use.

**CAR-HOLDER.**—LEE G. REPASS, Cripple Creek, Colo. The object of the invention is to provide a holder for securely holding the truck of the car in position on the rails, while dumping the contents of the car-body. A pair of curved, parallel hooks extend in a vertical plane and in longitudinal alignment with the track-rails and are arranged for removable connection therewith. The hooks are adapted to receive the treads of a pair of opposite car-wheels, to hold them to the track against upward movement.

**LOCOMOTIVE BUFFER-BEAM.**—JAMES F. DUNN, Salt Lake City, Utah. The buffer-beam has an unbroken top wall, unbroken front and back walls of rolled or pressed steel. The front and back walls are riveted to the top wall. Webs are secured within the beam between the front and back walls to prevent the collapse of the beam. Two steel plates at the ends and bottom of the beam are riveted to the front and back walls. The beam is strong, yet light. The boiler-front, cylinder-heads, and other vital parts of a locomotive are protected in case of collision.

Miscellaneous Inventions.

**PANORAMIC CAMERA.**—MELVIN T. STOWE, Mobile, Ala. The chief feature of the improvement is a flexible or, more properly, an elastic, adjustable holder for the sensitized film and the ground film upon which the image is focused, whereby the image thrown on the film by the lens may be rendered sharp at every point. Such a holder is particularly useful with a lens adapted for adjustment of focus corresponding with the distance of the camera from the object. The invention is a departure from most similar apparatus, in so far

as the camera can be focused to produce a perfectly sharp image.

**REVOLVER.**—CHRISTOPHER D. McDONALD, Vance, Colo. The purpose of the invention is to provide means for breaking or opening the arm and ejecting the empty cartridge-shells from the cylinder, to the end that reloading can be quickly and easily effected. The handle portion has an upper and lower extension, between the forward ends of which the barrel carrying the cylinder is hinged to swing sidewise. A spring-seated locking-bolt locks the barrel and handle, and cam-lugs draw the parts together when in closed position.

**WAR-SHIP.**—GEORGE W. VAN HOESE, Tuscaloosa, Ala. In engaging an enemy upon one side a large proportion of the guns of the battery of a war ship must necessarily remain inactive. If the heavy guns could be arranged so that all could be concentrated upon an enemy on one side, the efficiency of a vessel would be greatly increased. The inventor has endeavored to attain the desired end by a construction of rising-and-falling and rotating turrets, so that the guns therein contained have two planes of fire, the lower plane being the normal position when the guns are trained away from the center of the ship, and the upper plane of fire being above and across the upper works.

**ARTIFICIAL COMB FOUNDATION.**—HENRY VOGLER, Newcastle, Cal. The artificial comb-foundation has its cells constructed with thick beads extending around and constituting their rims or edges. Experiments have shown that bees require as long a time to make one pound of comb as to make ten pounds of honey; and this provision of surplus wax at the points most available for use by the bees is, therefore, of great importance, since it adds to the time available for gathering honey.

**BUILDING CONSTRUCTION.**—MARVIN H. JESTER, Manhattan, New York city. This system of construction embodies improved means of forming the floors and ceilings, such means being also adaptable to the building of walls or partitions of the building. Strong main beams are provided, on the lower flanges of which cross-ties rest, extending from one beam to the next. Hangers are secured to and depend from the cross-ties, and straps are fastened to the lower ends of the hangers, each of the straps extending across from one hanger to the next.

**PROCESS OF MAKING LUBRICANTS.**—JAMES M. JEWETT, Norfolk, Va. The process consists in mixing fat and soap under the application of sufficient heat to cause the mixture to melt or dissolve, adding thereto resin at a temperature of about 225° F., and then adding peanut-oil after discontinuing the application of heat. The lubricant keeps well, is not adhesive, and has great heat-absorbing or cooling power, rendering it particularly applicable to bearings.

**TWINE-CUTTER.**—CHARLES E. McLAUGHLIN, Kanawha City, W. Va. The cutter is of that class designed to be worn upon the fingers. One of the objects of the invention is to construct a holder for the knife, so that it can be worn upon the third and fourth fingers, without interfering with the use of either and leaving the thumb and the other fingers perfectly free. The blade is so shaped and fitted in the holder that twine of large or of small size can be cut with equal ease and rapidity.

**DRAWING IMPLEMENT.**—ARTHUR L. PATTERSON, China Grove, N. C. This drawing implement is designed to enable a draftsman to draw ellipses. The implement comprises a string, a ruler, two clips adapted to be slipped on the ruler (each being provided with a string-clamp), a ruling-pen, and a plate adapted for attachment to the ruling-pen and provided with a passage-way for the string.

**ROPE-TIGHTENER.**—CARL A. BERTRANG, Brooklyn, New York city. The rope-tightener is triangular in form. A lever is pivoted to one angle of the frame, the lever having one end extending outwardly and being arranged for the attachment of a rope. The inner end of the lever forms a clamping end or dog. Clamping-pulleys are journaled at the other angles of the frame, so as to coact with the dog. With this device it is possible to take up the slack in the rope, and yet quickly free the rope when it is desired to slack off.

**WATER-COLOR BOARD.**—LOUISE H. COLLINS, Manhattan, New York city. The board is provided at one edge with two hinged, adjustable legs which rest on the ground, while the board itself is supported by the lap of the artist. A slide is provided, on which a tray or case of colors can be placed. The entire board can be readily folded and transported. A board of this kind can be very compactly, strongly, and yet lightly constructed, so that it can meet all the requirements of an artist who desires to work in the open air.

**GAME APPARATUS.**—DALTON DORR, Cynwyd, Penn. The invention provides a game apparatus in which triangular spaces are employed, having sections differing in color, so that a number of pieces can be arranged in different ways to produce a great variety of geometrical designs. The inventor sometimes combines with this feature an arrangement of pips or dots, by which the blocks or pieces are adapted for use in a game similar to that of dominoes.

Designs.

**HANDLE FOR SPOONS, FORKS, LADLES, ETC.**—AUSTIN F. JACKSON, Taunton, Mass. This patent presents a new design for the handles of forks, spoons, and the like, and provides ornamentation both unique and artistic in character.

**HORSESHOE.**—WILLIAM VELDEN, New Orleans, La. The feature of this design consists in interrupting a side outline of the horseshoe at the heel and connecting the interrupted portion with the heel at the opposite side of the shoe.

**COIN-MAT.**—HIRAM C. UNDERWOOD, Metuchen, N. J. The leading feature of the mat consists of depressions, rises, and saddles, whereby a coin can be conveniently picked up with gloved or ungloved fingers.

**TROUSERS-HANGER.**—ARCHA L. ROSS, Manhattan, New York city. The hanger is made of a single piece of wire, having pairs of downwardly-extending loops and a separating-bar between adjacent pairs of loops. The loops receive the trouser buttons. The hanger can be so adjusted that several pairs of trousers can be secured to the loops.

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