# Scientific American.

#### Deep Bore Holes and Shafts.

The deepest oil well which has yet been sunk in this country is about twenty-five miles from Pittsburg in the valley of the Monongahela River. A few months ago the hole had been drilled to a depth of 5,532 feet, and then work was suspended on account of an accident; owing to a break in the rope, a thousand feet of it, with the tools, dropped to the bottom and at last accounts men were at work fishing for the lost supplies, says The New York Sun. It is intended to sink the well to a depth of 6,000 feet. This breakage is the chief difficulty in the way of making deep borings. When the artesian well was dug at Grenelle, Paris, a length of 270 feet of boring rod broke off, and fell to the bottom of the hole after a depth of 1,254 feet had been reached. It required nearly fifteen months of constant labor to pick out the broken parts, and the drilling could not, of course, be resumed until they had been removed. At present there are only two borings in the world, which are any deeper than the Monongahela one and they were both sunk in Germany at the expense of the government to ascertain the thickness of the coal measures, and the greatest depth was obtained at Paruschowitz, in Upper Silesia, where the diamond drill has penetrated to the enormous depth of 6,570 feet, and the second is near Schladebach near Leipsig. The following is a list of the deepest bore holes.

	I CCL.
Paruschowitz, Upper Silesia	6,570
Schladebach, near Leipsig	6,265
Monongahela (thus far sunk)	5,532
Wheeling, W. Va	4,920
Sperenberg (gypsum beds near Berlin)	4.5:59
Lieth, near Altona	4,388
Eu, near Stassfurt	4,241
Lubthen, in Mecklenburg	3,949
St. Louis, Mo	3.843
Sennewitz, near Halle	3,644
Inowraziaw, Posen	3, 24
Friedrichsaue, near Aschersleben	3,542

Most of the artesian wells in this country vary from 200 to 1,000 feet in depth, and the average depth of those sunk for irrigation in the western part of the country is 210 feet. When shafts are considered this country has the deepest. One on the Houghton Peninsula was begun in 1895, and will not be completed until 1901. This will be the deepest shaft in the world, and will take that distinction away from the Red Jacket vertical shaft of the Calumet and Hecla mines, which is less than a mile away. This shaft is 4,900 feet deep.

# The Solubility of Argon and Helium in Water.

Mr. Estreicher has recently published an account of a series of researches which he has made in order to determine the solubility of argon and helium in water. The value given by Mr. Ramsay, in his preliminary note published in 1895, for the coefficient of solubility of helium, makes this to be 0.0073 at 18°C, showing it to be one of the least soluble of the gases, but as a result of further experiments, Mr. Estreicher considers that

this coefficient should be doubled or nearly so. The apparatus he uses is the same in principle to that devised by Ostwald, but has two considerable improvements, one of these consisting in the employment of a glass spiral to unite the recipients of measure and absorbtion, which permits him to make the apparatus entirely of glass, and the whole instrument can be immersed in the water. This envelope of water permits the determination of the exact coefficient of solubility at temperatures varying from 0° to 50° C. He has plotted his results in the form of a series of curves side by side with the curve of nitrogen for comparison. The curve of the solubility of argon is of the usual type, with a decrease as the temperature raises, the value ranging from 0.0578 for 0° C. to 0.02567 for 50° C.

The solubility of helium varies but slightly with the temperature, and the curve shows a minimum near  $25^{\circ}$  C, the values being 0.015 for  $0^{\circ}$  C.; 0.01371 for  $25^{\circ}$ ; and 0.01404 for  $50^{\circ}$  C. The curves of nitrogen and of helium cross at about  $30^{\circ}$  C, this being the tempera-

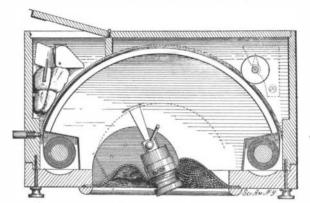
ture at which they have the same solubility. Above this temperature, nitrogen becomes more soluble than helium.

THE German Archæological Institute at Athens has just celebrated the twenty-fifth anniversary of its foundation, and the celebration was held in the presence of a number of members of the royal family of Greece. Addresses were made by Prof. Dörpfeld, M. Homolle and other archæologists. During the last quarter of a century the German Institute in Athens has rendered immense service to the cause of archæological science conducting researches at Menidi, Tegea, Corinth, Sunium, Thebes, Mitylene, Paros. Athens and Megara, besides participating in important excavations at Olympia, Troy, Tiryns, Orchomenus and elsewhere.

### A CONVENIENT PANORAMIC CAMERA.

The amateur photographer, equipped with the ordinary 4 by 5 camera, many times sees, in the course of his excursions, opportunities for securing pictures embracing a wider range of view than his camera permits, and generally arranges the instrument to rotate in such a way as to take a succession of separate views, covering an area of 180 degrees; then, by joining the finished pictures in line together, a panoramic view is obtained. A picture of this kind requires a nicety of manipulation in matching to obtain satisfactory results, otherwise the joints will appear too prominent and render the scene imperfectly.

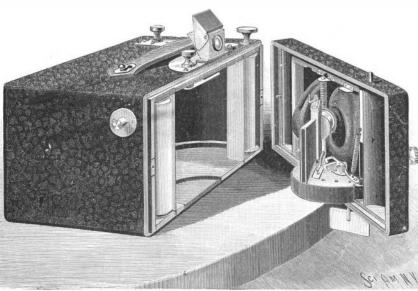
Since the advent of the rollable film and the subsequent improvement known as a daylight cartridge film, different forms of cameras have been devised for making panoramic pictures. Our illustration is a type



SECTIONAL PLAN OF PANORAMIC CAMERA.

of one of the latest styles of a panoramic camera called the "Al-vista," just introduced by the Multiscope and Film Company of Burlington, Wis., embracing several improvements which make it very convenient and adaptable for several purposes; at the same time it can be easily and rapidly operated, loaded and unloaded.

The camera is made in two principal parts: first, the lens board, or front, and lens-moving mechanism; and second, the back or box for holding the film, film spools, film punching and registering device, lens index, stop arm, finder, and level. This construction enables the operator at will to take a picture of a uniform width of 4 inches to 4, 6, 8, 10, or 12 inches long. The lens supplants the ordinary focal plane shutter by itself rotating over a half circle and throwing the image 4 inches wide by 12 inches long upon the semicircular film in the rear. It is pivoted rigidly midway between the front and rear lenses to a vertical shaft operated by clockwork mechanism observed in a casing below the lens, and is protected by a flexible leather front. A flaring radial rectangular tube about 2 inches long projects rearward from the lens tube and carries the picture rays from the lens in the form of a narrow strip of light, something like the flash of a lighthouse lamp, continuously along the rear circular



A ROLL HOLDER FILM PANORAMIC CAMERA.

sensitized film. So it is only necessary to control the extent of the revolution of the lens to determine the length of the picture desired. To set the lens, the kev seen underneath is rotated, which in turn winds up the clock spring and turns the lens in the opposite direction until it is held by the release lever. At the rear of the lens tube is a small shutter whose projecting arm at the top is arranged to impinge against the stop plate arm to be seen just under the center of the top of the film box. This has an index pointer on the outside and can be quickly adjusted by rotating the knob with fingers. If an exposure 6 inches long is desired, the pointer is set at figure 6; when the lens is released, it rotates until the arm of the shutter strikes the stop arm and thus only exposes a 6-inch section of the whole film. The finder is supported upon a revolvable plate, also having an index pointer, and this

is set at the figure 6 so that the image viewed in it will be parallel to that covered by the lens. Adjacent to the finder is a circular level. A shaft from the clockwork mechanism projects slightly through the bottom of the lens board, or front, and to this may be attached different sized flat pieces of metals which act as fans and regulate the different speeds at which the lens can be made to rotate. There is also provision made for inserting different sized stops in the lens.

The sensitized film spool is put in the extensible spool holder on the left hand and carried over a guide roller and on through the semi-circular channel to the other end, where it is wound up upon the winding spool, against a suitable tension plate. The thumb screwhead for operating this spool is seen on the right hand end. In its movement the film also operates an index cylinder, which tells at the top the number of inches of film reeled off, then on the left is a punch button for punching a hole through the film after each exposure, as a guide to the separation of the pictures.

The lens front is secured to the film box by two thumb screws, one at each end. Every part is accessible, and the matter of friction in the free movement of the lens is reduced to a minimum. The camera is intended to be supported on a tripod, but is provided with a handle, and in emergencies can be held on the arm during exposures.

In an exposure without any fan attached, the lens rotates from one side to the other in  $1\frac{1}{2}$  seconds, causing the image to travel over a space of 12 inches, thereby giving one-sixth of a second stationary exposure. Fans lengthen the exposure  $\frac{1}{2}$ ,  $\frac{1}{2}$ ,  $\frac{1}{2}$  seconds, according to size used. In the rear is a compartment for holding the finder, fans, stops and extra spools of film.

From what has been said it will be noted that the camera is a very useful instrument, in view of the fact that panoramic or smaller sized pictures, time or instantaneous, can be quickly and easily made, according to circumstances.

## A New Ore of Nickel.

A new nickel, believed to be of great commercial value, has been discovered in the copper ore district of Houghton, Mich. It has been named Mohawkite, from the mine in which it was found. It was at first supposed to be a copper sulphide, but chemical examination indicated that it was a new mineral. It possesses a silvery metallic lustre when freshly broken, with very irregular fractures. Chemical analysis shows that it is an arsenide of copper, similar to the domeykite, in connection with which is also found an arsenide of nickel. The possibilities offered by this combination are very great. Copper is more than ever a valuable metal and is now commanding a high price, and nickel is now used in a large number of industries where twenty-five years ago a few tons only were used, in the subsidiary coinage of the United States, so that the discovery of new ores and new bodies of an ore of nickel, may be regarded as of the greatest possible importance. It is, however, in the field of alloys that Mohawkite will probably be more valuable. The

assays. so far as determined, reveal an almost ideal composition for an alloy of copper and nickel, for which there is already a good demand. The new mineral can also be turned into commercial products from the ore almost without waste.

# The International Photographic Congress.

The Committee in charge of the International Photographic Congress which is to be held in Paris, has recently established the following programme of the questions to be considered.

1. Photographic plates, classification and sensibility in various conditions of use. 2. Photometry; the practical study of the subject as applied to photography. 3. Characteristics and classification of optical glass. 4. Lenses and diaphragms; systems of numbering. 5. Questions relating to photographic shutters. 6. Classification of glass plates used in photography as to thickness. 7. Dimensions of cinematograph bands. 8. Expression of photographic formulæ. 9.

Project for decimal classification in the bibliography of the subject. 10. Legal protection. 11. Proprietary rights and licenses. 12. Questions relative to photographic documents and archives.

If it is desired to communicate any documents or researches relating to these or like subjects, a resume should be addressed to the secretary of the committee before the 15th of June in order that it should be admitted to the sessions of the congress. The secretary, M. S. Pector may be addressed at 9 Rue Lincoln, Paris.

AN exhaustive exhibit of United States postage stamps will form a part of the Paris Exhibition. It is said to be one of the most complete ever made, embracing every variety issued since the inauguration of the postal service.

# Scientific American.

### 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

	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	<b>23</b> 8,000
Holland	. 224	366,000	251,000
Sweden	. 497	340,000	232,000
Austria	. 167	335,000	213,000
Belgium	. 78	147,000	103,000
Brazil		140,000	90,000
Greece	. 108	140,000	91,000
Turkey	. 79	78,000	47,000
Argentine Republic	. 68	52,000	38,000
China	. 38	<b>56,00</b> 0	36,000
Portugal	. 29	5 <b>4,00</b> 0	33,00 <b>0</b>

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

the saming vessels.		
	Number of	_ Net
	Vessels.	Tonnage.
England	7,706	2,662,000
America	3,497	1,292,000
Norway	2,306	<b>9</b> 97,000
Germany	981	548,000
Italy	1,557	492,000
Russia	2,455	473,000
France	1,371	309,000
Sweden	1,423	277,000
Turkey	1,380	262,000
Greece	972	197,000
Spain	1,052	152,000
Denmark	752	138,000
Holland	663	118,000
Brazil	864	80,000
Chili	132	60,500
Portugal	237	60,430
Austria.		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 vet 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 Moernsheim 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-Mammas—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 thirtythree 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 ratchetwheel, 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 quarterturn. The switch is positive and quick in its action

# Mechanical Devices.

MACHINE FOR PARING FEATHERS.-JOSEPH Loch, Brooklyn, New York city. The feathers are drawn over a bed constructed in sections vertically adinstable, 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.

ANDREW TUITE, Albany, Ind. The pipe-machine com- top wall, unbroken front and back walls of rolled or prises 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 of the beam are riveted to the front and back walls. poured into the mold, and water is poured into the The beam is strong, yet light. The boiler-front, cylproper passage to keep the core cool. then slowly raised and compressed air is admitted to the protected in case of collision. 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 denomiflexible or, more properly, an elastic, adjustable holder nations, each compartment being independent of the for the sensitized film and the ground film upon which others, and having a hinged section capable of exposing the image is focused, whereby the image thrown on the interior, together with an independent extractor for the film by the lens may be rendered sharp at every the discharge of the coins. The coins placed in the coin point. Such a holder is particularly useful with a lens receptacle automatically form a column. The recepta- adapted for adjustment of focus corresponding with the blade is so shaped and fitted in the holder that twine of cles are so mounted that, when touched, they will swing

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 the ship, and the upper plane of fire being above 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

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 alinement with the track-rails and are arranged for removable connection therewith. The books are adapted to receive the treads of a pair of opposite car-wheels, to hold them to the track against upward movement.

LOCOMOTIVE RIFFER REAM \_JAMES F DUNN GLASS-PIPE-MACHINE.—WILLIAM P. PARSONS and Salt Lake City, Utah. The buffer-beam has an unbroken 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 The core is inder-heads, and other vital parts of a locomotive are

# Miscellaneous Inventions.

PANORAMIC CAMERA.-MELVIN T. STOWE, MOdistance of the camera from the object. The invention upon their axes in the direction of the coin-discharging is a departure from most similar apparatus, in so far rapidity.

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.-GGORGE W. VAN HOOSE, 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 across the upper works

ARTIFICIAL COMB - FOUNDATION. — HENRY VOGELER, 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 gather ing honey.

BUILDING CONSTRUCTION.—MARVIN H. JESTER. Manhattan, New York city. This system of construction embodies improved means of forming the floors and cei ings, 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 Inbrigant 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 large or of small size can be cut with equal case and

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 passageway 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 and the like and rrovides ornamentation both umque 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.-ARCHIA 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 Mumi & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper,