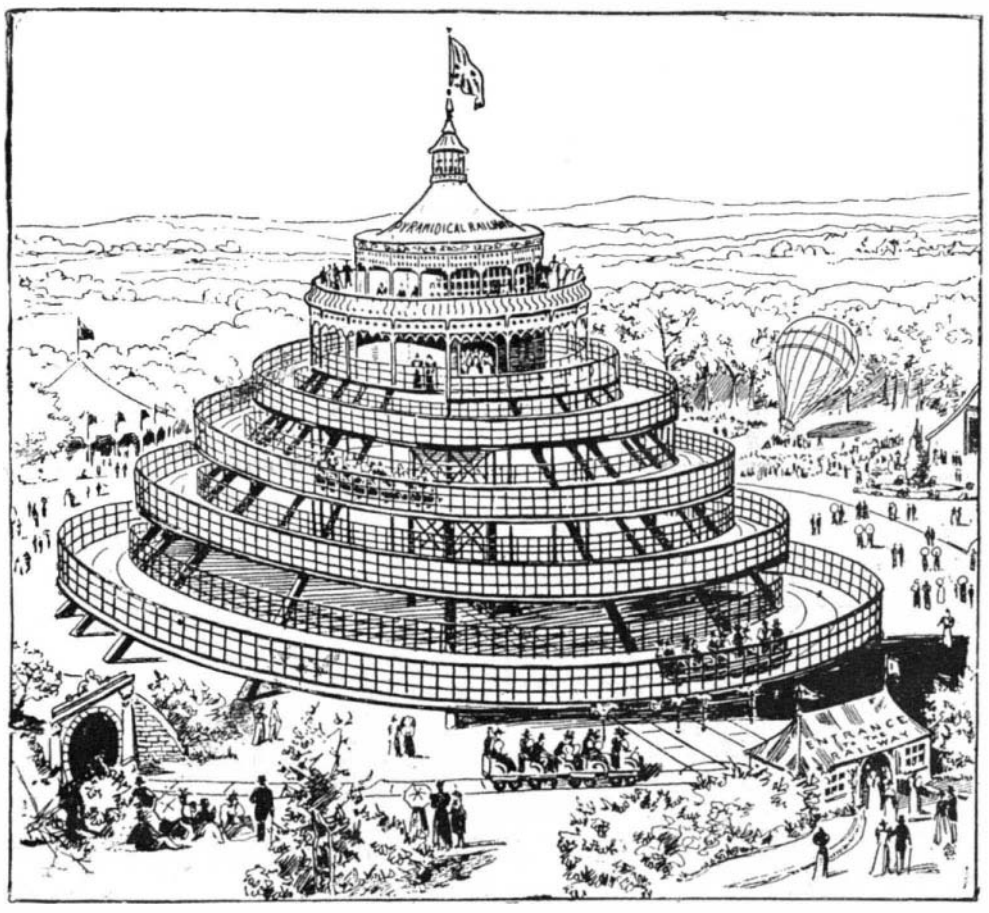
THE PYRAMIDICAL PLEASURE RAILWAY.

A late form of popular entertainment devised for the British public comprises a pyramidical railway, for an illustration and description of which we are indebted to St. James's Budget. It is a recently patented invention, and embraces, as will be seen, many features made popular in our own gravity roads at the seaside and other pleasure resorts. It is a cone-shaped, circular iron structure, or of wood, as the case may be, according to the scale on which it is erected, and from the top downward at an easy gradient is arranged a winding track, round which the passenger in search of excitement may be carried to the bottom as quickly as may be. Perhaps we may describe exactly what happens. The passenger takes his seat in a car on the ground level. The car is then hoisted to the top of the structure by means of a lift, and is run out on to a small turntable, from whence the descent is started. By the time the car reaches the bottom of the gradient it may be imagined that the velocity it has attained is considerable, wherein lies the excitement of the trip. Arrived here, the car runs on to an upward gradient, and passing through a short tunnel—a detail intended to counteract any symptom of giddiness which may occur to persons of weak nerves—comes to a natural stoppage at the point from which it started. It is intended to use the structure as a place of entertainment for many more people than will be able to avail themselves of the cars. For instance, the whole of the track will be utilized as a promenade, a footway being placed alongside the lines, and at the top of the cone will be a covered pavilion, surrounded by balconies, in which may be found a band of music and refreshment bars, while the whole of the inside space beneath the pavilion and within the circular track can be covered in and used as a concert hall or theater. Finally, the power which is used to raise the lifts can be requisitioned to establish a system of electric lighting, so that at night the pyramid may be aglow with a host of small incandescent lamps.



THE PYRAMIDICAL PLEASURE RAILWAY.

What to Wear When Being Photographed.

The sorrows of the trying ordeal, having one's photograph taken, may be mitigated by following a few suggestions made by Mrs. Catharine Weed Ward in the Photogram, the magazine which she and her husband conduct in common. Mrs. Ward says: "The greatest number of sitters are utterly ignorant as to how materials. colors and styles of costumes will appear in the finished portrait, and the operator is blamed for what is, as a rule, not his fault. As a rule it is well—and should be required—to avoid very positive patterns, such as large plaids, checks, wide stripes and much jet or other glittering trimming and much jewelry. Sharp contrasts in materials, trimming or style of cut are a decided detriment to a pleasing portrait, and, as a rule, the tone of color should harmonize with the sitter's complexion and hair. Glistening silks are difficult to light well, as is any material which does not easily lend itself to soft folds. Dead luster silk, soft woolens, crapes, fleecy tissues, and similar materials are always effective." Mrs. Ward advises, too, that one should soften by rendering it indefinite the line between skin and dress, both at neck and wrists, remembering always that, however well a costume may appear in reality, it alters before the camera and may call attention to what might otherwise pass unnoticed.

Practical Golf.*

It is a great mistake to think that the game of golf is confined to country of a special topography, or to well laid out links prepared under the auspices of clubs and experienced golfers from England. Naturally, links which have been laid out by an experienced hand over territory suitable for the game will be better than others, but, practically speaking, any boy or man can make his own links and have many a good game of golf on them, if he has territory enough. If you are at the seashore, for example, you have the very best grounds for links in the sand dunes and the uplands that are usually within a mile of the beach. If you are in the mountains, there is capital country at hand in all the irregularities which are always near mountains. If you are on farm lands, there are sure to be clumps of trees, little ravines, and a dozen other varieties of depressions and elevations, all of which can be utilized. Only one thing is needed in all this, and that is, of course, necessary—a thorough love of the game and a reasonable supply of ingenuity.

Here is the whole principle in a nutshell. The game of golf consists in driving small balls over the country and sending them into a series of holes with mallets or clubs. He who goes the rounds of the holes in the fewest strokes wins. The number of holes or links may be seven, eight, nine, ten, or more. They may be any distance apart. They may be over any kind of country. If there are only four or five, go over these three or four times for one game. If you have eighteen, that is quite enough. Nine is a common number, giving the player eighteen holes in all—that is, nine out and nine back. As it is comparatively easy to "hole" the ball on perfectly level greensward, the scheme is to secure a bit of country which offers obstructions, such as ravines near holes, or stone walls, sand pits, or anything of this nature. In other words, the more irregular the country, to a certain extent, the better the links.

You who are near the seashore should work somewhat as follows, therefore: Go out some day, taking along your American ingenuity, and start from some spot near the hotel. You must select a level bit of earth for a "teeing ground"—a place to start from. Perhaps two hundred yards away there is a deep sand pit. Here is your next spot. Take six inches of four inch gas pipe, and drive it into a level piece of turf or hard ground near the sand pit. Excavate the earth inside the pipe, and there you have a hole six inches deep and four inches in diameter. When the earth around the hole has been thoroughly rolled, you have the first hole and its "putting green." If, in making your stroke from the teeing ground, the ball goes into the sand pit, you have to drive it out by using the clubs, each stroke counting against you. The sand pit or "bunker" is, therefore, what makes the stroke difficult and brings out the skill of the player.

Perhaps three hundred yards on there is a large mound of earth, or a stone wall, or a row of trees. Put the second hole and green just beyond this, and again this obstruction or "hazard" will serve its purpose. The distance may be anything from half a mile to three miles over the links. They themselves may be in a straight line, in irregular lines, or in a circle. It does not matter. Variety and difficulty are the two qualities needed. Of course in thoroughgoing links all teeing grounds should be bits of greensward, perfectly level and smooth, and the course from hole to hole should be free from long grass. But, practically speaking, anything will do.

The game itself consists in hitting this small ball, which is nearly two inches in diameter, with one of the series of clubs from one hole to another over the course. You "tee off" at the start by making a little pile of earth, placing the ball on this with the hands, and thus securing an opportunity for a strong stroke with the club. After this the ball cannot be touched with anything but the club, until it has been holed, except under certain conditions, when it counts against the player. This first stroke is, of course, a long drive, the object being to get as close to the first hole as possible on the first stroke. You may hit a fence, or get into a bunker, or strike a tree. The skill lies in not doing any of these things, but in driving the ball so that it will stop within a few feet of the first hole, if possible on the green. Then your object is to go into the hole on the next stroke, or in the next few strokes.

Having once holed, take the ball out with the hands, make another tee, and drive for the next hole. At the same time that you are playing, your opponent is likewise driving another ball from hole to hole. If you go the rounds of the links in ninety-five strokes, and he does it in ninety-six or ninety-seven, or any larger number, you have won. There are other ways of counting which can be easily learned by one who becomes interested in the game.

Do not make the mistake of thinking that a dozen or more clubs are necessary. They are not, at first, at any rate. By and by, when you join a golf club, and play on well laid out links, with all the refinements possible, some of the extra clubs will perhaps be of use; but for the boy or young man who is beginning, and who does not expect to be a professional or a champion tournament player, six clubs are more than enough. These are briefly:

The Driver is a wooden club of the kind called "bulger." This is used to drive the ball when it is in good position and a long straight distance is to be covered.

The Brassy is a club which is of wood, but has a shoe of iron, hitting thus a more precise and heavier blow. It is to be used for shorter distances and when the ball lies in a position where you cannot get a good, full swing with the driver.

The Cleek is an iron club—that is, the lower part is all iron—and is used for still shorter strokes than a brassy, and where the "lie" or position of the ball is still worse, when a stiff, quick stroke is required, with more precision and less distance to it.

The Mashie has a shorter handle, which is stiffer than the foregoing, and at the same time the face of the shoe is turned backward, so that as you hit the ball it lifts it quickly, differing from the driver stroke just as a "fly" differs from a "liner" in baseball. This club is used for getting a ball out of a sand pit, or a rut in the road, or long grass, where distance is hardly an item.

The Lofter is iron-footed, and still more turned back as to face. It is used to jump the ball out of a deep bunker, and to make it rise quicker while not going so far as the mashie would send it. The lofter is also used to send the ball up on the putting green.

The Putter is a club used for sending very short but extremely accurate strokes, those, for example, which actually send the ball into its hole after it has been sent up on the green with the lofter. Some of these are iron, some wood; the metal are better.

These are all the clubs that are necessary; and with what has already been said of the game and the links, no boy in the country need go without playing golf if he really wants to play. Lay out a set of links and see how easily it can be done.

Iron in Food.

Professor Bunge, in the course of a paper on iron as a medicine, read before the German Congress of Internal Medicine, has been ventilating some ideas which are as much matter of general science (and therefore extremely important) as they are details connected with the physician's domain. He is strong on the point that iron should reach our blood through the medium of our food, rather than through the druggist's specialties. Iron, as everybody knows, is a food element absolutely essential for the proper constitution of the body. It is as rigidly demanded by the plant as by the animal; and it is from plants that Professor Bunge shows we should chiefly receive our iron supply. Spinach, he tells us, is richer in iron than the yolk of eggs, while the yolk contains more iron than beef. Then succeed apples, lentils, strawberries, white beans peas, potatoes, and wheat, these substances being given in the order in which they stand as regards the plentifulness of their iron constituents. Cow's milk is poor in iron, but, as balancing this deficiency in the food of the young mammal, it is found that the blood of the youthful quadruped contains much more iron than the adult. Thus, in a young rabbit or guinea pig one hour old, four times as much iron was found than occurs in these animals two and a half months old. These are interesting facts, showing that nature probably draws on the original store of iron in the young animal for its nutrition during its milk-fed period.

* By James Hammond, in the Outlook.

Self-motive Carriages and Electric Accumulators.

The foolish race, writes M. Hospitalier in L'Industrie Electrique, that has just taken place between Paris and Bordeaux and back, has brought out incontestably the advantages, henceforward indisputable, of petroleum, or more correctly, of the essence of petroleum or gasoline; it has relegated steam to the second rank and placed electricity much lower still on the list, for a partisan of this mode of locomotion, as bold as rash, presented a carriage which would traverse the 1,775 kilometers of the course, if not in the 100 hours allowed to competitors, at any rate in a time more suited to the future applications reserved for self-motive carriages on public roads.

We need not wonder at the almost entire absence of electricians from this competition, the object of which still remains a mystery to many, and to some a bitter deception.

As regards the bicyclette, the interest attached to the races is, and should only be, ephemeral; practical applications only will survive, and the competitions that present the most practical character are those that will render the greatest service to the development of self-motive locomotions, the dawn of which is appearing at the end of this century. From this point of view, the competition of carriages without horses, instituted last year by the Petit Journal, was much more useful, and responded far better to a real want than the Paris-Bordeaux-Paris race.

But long races from town to town, and long trials of speed over long distances, are not suited to electric carriages deriving their electrical energy from accumulators; these carriages must really be placed on the same footing with carriages drawn by horses which start in the morning and return to the coach house at night, so as to recuperate during the night the energy expended during the day. And, again, these carriages are only suited to applications for conveying people either for purposes of business or pleasure; in a word, we want to realize the electric cab or carriage. For conveying goods, the place is already filled and well filled by the gasoline carriages which are already used by a number of firms for their town deliveries.

A few general figures will suffice to show the superiority of gasoline from a mechanical and economical point of view.

The motors of 2 to 5 horse power used on the gasoline carriages consume about 500 gr. of a density of 0·7 per mechanical horse power hour available on the axle of the motor.

Taking transmissions into account, when considering the efficiency, 1 kg. of gasoline represents at least 250,000 kgm. available at the rim of the wheels. With the boilers used on the steam carriages, 1 kg. of good coal produces at most 6 kg. of steam, and the non-condensing motors consume at least 18 kg. of steam per horse power hour, or 5 kg. of coal per horse power hour. One kg. of coal, therefore, produces at the most 90,000 kgm. on the motive axle and 50,000 kgm. available for traction at the rim of the wheels, taking transmissions into account.

An electric accumulator produces now a maximum of 15 ampere hours at 2 volts, or 30 watt hours, or 18,000 electric kgm., which represents 5,000 kgm. available at the rim of the wheels, taking into account the efficiency of the motor and transmissions. We may assume that the weight of gasoline, steam, and electric motors are to all intents the same, but the petroleum motor necessitates the transport of a certain quantity of water for cooling purposes, and the steam engine that of a still larger quantity of water to be converted into steam on the journey, while with the accumulator we must transport a considerable and constant weight. It follows from this that the figures 250,000, 50,000, and 5,000 do not represent the respective valves of the mechanical energy utilized in the three kinds of self-motive carriages. A closer comparison lowers the comparative value of the steam engine, and raises that of the petroleum engine, since the latter has not to carry uselessly, like the accumulator carriage, a considerable dead weight, the transport of which absorbs the greater part of the available energy.

These figures show that there is no chance of competition between the accumulator carriage and the gasoline carriage in a speed test like the Paris-Bordeaux-Paris race, and they justify the almost entire absence of the former, for only two carriages of the kind were entered, and only one really took part in the competition, arriving at last at Bordeaux after numerous mishaps on the way. But steam has many objections which it would be puerile to mention; petroleum engines have to be started by hand after each little stoppage, they are noisy and productive of much jolting, they exhale an odor which is far from agreeable, and often they can only be persuaded to ascend hills of any steepness on the condition that the passengers are obliging enough to dismount, and sometimes even push the vehicle.

While rendering all due honor to gasoline, and sincerely applauding its success, and notwithstanding the unfavorable figures that we have just quoted, electrical carriages offer such advantages as regards comfort, convenience, simplicity of manipulation, etc., that we must still persist in believing in their superiority for a metropolitan service in large towns provided with distributions of electrical energy. The electric carriage will best solve the problem of the electric cab, the possibility of realizing which we suggested in 1881, and which, it seems, is on the eve of being realized in Paris itself. Qui vivra verra.

Electrocution of Shade Trees.

It is a question whether the stringing of electric wires in cities and villages will not destroy a large proportion of the shade trees. Complaint is made in several cities that where the wires pass through the foliage the trees in nearly every instance have died, presumably from the effects of the electric current. It has been noticed also that the death of the trees almost invariably follows a season of rain, when the wet leaves are good conductors of electricity and carry it from the wires to the trees. In some cases the death of trees has been caused by wires supposed to be thoroughly insulated, the covering having been rubbed off the wires by the friction of the branches when moved by the wind.

The evidence that the trees have been killed by electricity is furnished by the fact that in numberless instances the trees through which the wires pass died in an hour during a storm, while those standing a few feet from the wires were uninjured. These results will raise the question as to the liability of electric light companies for the damage caused by the killing of shade trees. The right to string electric wires does not give the further right to destroy the shade trees, which may constitute the chief value of a piece of real estate. Neither does it give the right to lop off the branches and otherwise disfigure ornamental trees simply because such branches happen to be in the way of the wires. This has been done by an electric light company in one of our suburban villages, and many large and beautiful trees have been practically ruined by such vandalism.

This destruction of trees is quite likely to lead to expensive litigation before a property owner's right to receive damages for his loss is established by the courts. A good deal of trouble could be avoided if electric lighting and power companies would take pains to place their poles and string their wires so as not to interfere with the ornamental trees along their lines.—Chicago Record.

RECENTLY PATENTED INVENTIONS.

Railway Appliances.

CAR MOVING BAR.—John McFarland, Austin, Canada. For moving and shifting cars in railway yards, this inventor provides a bar or lever in which fit loosely independent jaws adapted to rest on the rail and grip it on opposite sides, a spring connecting the lever with the shanks of the jaws. When the lever is placed on or over the rail and the handle pressed slightly down, the lever acts in a wedge-like manner on the jaws and causes all the weight to be converted into grip on the rail, the grip being automatically released by the action of the spring when the pressure is removed.

QUICK ACTION BRAKE VALVE.—William Hirst, Trenton, N. J. This invention covers an improvement in triple valves, whereby the pressure in the brake cylinder is retained at all times up to the required full working pressure. It provides a retaining valve in the form of a spring-pressed piston valve arranged in the triple valve exhaust and normally held in open position by pressure from the train pipe, the valve, on reduction of pressure in the train pipe, connecting the triple valve exhaust with a port leading to the main valve to establish communication between the auxiliary reservoir and the brake cylinder.

Electrical.

ELECTRIC TARGET.—Milton T. Weston, Kenton, Ohio. This invention relates to pleasure ground targets to be struck by a spear or wand, or targets for shooting galleries. A circuit closer is actuated from the bull's eye and is so connected as to actuate an alarm, and also, through an electromagnet, release a hanger, whereby a prize will be presented to the one making the bull's eye. The alarm bell and the magnet may be placed above and alongside of the marksman, the bell ringing and the prize dropping by his side on a successful shot being made.

Mechanical.

DOWELING MACHINE.—Christian Loetscher, Dubuque, Iowa. To drive dowel pins into mortised joints in sashes, doors, etc., this inventor has devised a machine in which an inclined spout feed device is grooved to permit the lengthwise sliding of a dowel, a stop plate at the lower end of the spout having an aperture registering with its groove, while a feed tube connected with a plate extends substantially in alignment with the lower end of the groove. The machine has a hollow head in which is a movable plunger, a collar movable relatively to the head being controlled by the plunger, and the head and collar having a dowel feed passage at an angle to the line of motion of the collar.

HAND DRILL.—Robert Binnie, Bolivar, Pa. To facilitate drilling in rock, etc., at any angle, without danger of the drilling tool getting stuck in the hole, the drill shaft is mounted in a carriage on a frame, and on the drill shaft is a sliding frame provided with wheels, cams on the driving shaft engaging the wheels, and there being a worm on the driving shaft and a worm wheel in which the drill shaft slides, the shaft having a key and groove connection with the worm wheel. The drill can be readily set in any desired working position, and is easily moved about from place to place.

Miscellaneous.

WAR SHIP.—George W. Van Hoose, Tuscaloosa, Ala. To enable the whole armament of heavy guns of a ship to be fired at once in any direction, this invention provides a form of turret and barbette in which the turn table of the turret always remains below the upper deck and protected by the barbette, the gun carriage and its housing rising above the deck when firing and falling below it at other times, so that one set of guns adjusted to the higher position may fire directly over another lower set of guns. A special form of barbette, and of turn table with gun carriage and housing, are provided, and special hydraulic devices for raising and lowering the guns and their housings.

WOVEN CHENILLE FABRIC.—Leedham Binns, Philadelphia, Pa. This is an improvement on former patented inventions of the same inventor, providing a fabric having a fine appearance and adapted to be formed in various ways to produce a large variety of styles. It comprises a continuous web on opposite sides of which at intervals are arranged separate sets of warps, wefts being interwoven with the separate sets of warps, while the ends of the wefts project from the outermost warp threads to form tufts.

LOG HAULING DEVICE.—Albert Van Duzer and Walter Kirby, Scotia, Cal. This is a simple attachment which may be conveniently applied to a cable and to a log to be hauled, and adapted to release and permit the logs to slide freely down a steep grade, the attachment being such that the cable cannot get beneath the log, but will always be in position to do the most effective work.

TYPEWRITER COPYING ATTACHMENT.—Charles H. Keith, New York City. According to this invention, a frame applicable to the carriage has a brace to hold it in the position of use and a roller to receive either a duplicating belt of carbon paper extending around the platen roller, or a belt saturated with copying compound, a supply roller to be filled with copying paper, a receiving roller to receive copy paper after the impressions are made on it, and spring-actuated mechanism to turn the receiving roller and cause it to automatically take up the copy paper as it is carried forward by the platen roller in the regular operation of spacing the lines.

ARCHES, PARTITIONS, ETC. — Foster Milliken, New York City. For such constructions this inventor provides a combination of cement and concrete with wrought iron or steel which will develop the full strength of all the materials. The invention consists in corrugating wire or similar material reinforced at its corrugations, bending the corrugated material to shape and bedding the reinforcing material and corrugated material with cement or concrete. The construction is also suitable for roofs, domes, sides of buildings, vault light work, etc.

VEHICLE TOP BOX OR RACK ATTACHMENT.—Lawrence H. Hansen, Viborg, South Dakota. For farm wagons especially this invention provides a means whereby an upper structure may be readily attached to the wagon body, to afford a high body for the carriage of cattle, corn, grain, etc., the sides and ends of the body extension to be dropped down and held at an angle, adapting the vehicle for hauling hay, straw, etc. Locking devices are provided whereby the body extension may be held firmly in whatever position it may be placed, and the upper structure held rigidly in either its expanded or its closed folded position.

GLUE STOCK CUTTER AND FEEDER.—Peter Cooper Hewitt, New York City. By this invention an apparatus is provided by which glue stock may be taken from the washer, conveyed to a cutter and held in position to be acted on by the knives. The cutting machine has a series of circular cutters, a series of serrated disks for holding the stock while it is being cut, a glue stock conveyor consisting of endless belts extending between the disks, guards between the cutters preventing the stock from being carried around by them. Adjustable gearing connects the shafts of the cutters and disks for regulating the position of the cutters relative to the disks.

BOX LID RAISER AND FASTENER.—Charles L. Feinberg, Brooklyn, N. Y. According to this invention, a catch is fixed to the body of the lid and a keeper to the adjacent portion of the box body, there being combined with the keeper a spring capable of raising the lid on the disengagement of the catch and keeper. That portion of the body which carries the keeper is yielding, so that it may be moved to engage or disengage the catch and keeper, the automatic raising of the lid being simultaneously effected with the release of the fastening device.

CURTAIN FIXTURE.—Delbert B. McCapes and Edward D. Quinn, Vermillion, South Dakota. This is designed to be a handsome attachment to be applied to the outer or inner face of the window frame to hang an ordinary window shade roller in, so that it may be readily adjusted vertically to bring the roller to the desired height. It comprises a slotted barrel in which slides a bracket projecting through the slot, means for fastening the barrel to a support, and an adjusting rod extending upward into the barrel and connected with the bracket.

CAPSULE FILLER.—Albert M. Ingalls, Duluth, Minn. This improvement comprises a funnel having at its outlet end an expansible and contractible tube to receive and hold by contraction a capsule body while being filled, and a double-ended reversible rammer with a longitudinal bore serving as an air vent. It is easily operated and simple in construction, and facilitates the rapid filling of capsules with the desired amount of medicinal and other material.

DENTAL MATRIX.—Joseph M. Strout, Portland, Me. A matrix retainer, comprised in this invention, can be set up by the fingers in like manner as a wrench, and placed in position as a napkin holder and cheek distender, or it may be turned down close to the gum, being quickly adjustable on either the upper or lower teeth or the bucal, lingual or palatine surfaces and crosswise of the teeth. The matrix is inexpensive and is made in sections united at one point in their length in a manner to be readily disengaged when withdrawn, obtaining the result of a band matrix, yet possessing the advantages of a two-piece matrix.

GAME COUNTER.—William F. Hochspeier, Jersey City, N. J. This device comprises a board on which are parallel rows of figures, one row having its figures in groups or series and the other having figures to correspond to those in the groups of the opposite row, there being tilting angular finger pieces pivoted between the rows. It is intended for use in games where successive amounts are made to complete a final total.

GAME COUNTER. — Joseph Voelker, Pittsburg, Pa. This device has a shallow cylindrical case whose cap piece has a single orifice, an inverted concave bell being held within the case and a dial rotating on the post, while a series of indicators is adapted to successively appear at the orifice in the cap piece, being moved with a step by step movement by actuating mechanism within the bell, as the player presses upon a finger piece projecting from one side of the case.

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.

NEW BOOKS AND PUBLICATIONS.

THE MINERAL INDUSTRY, ITS STATISTICS, TECHNOLOGY AND TRADE IN THE UNITED STATES AND OTHER COUNTRIES TO THE END OF 1894. Vol. III. Edited by Richard P. Rothwell. New York: The Scientific Publishing Company. 1895. Pp. 770. 8vo. Plates, illustrations and tables. Price $5.

To the engineer, the chemist, the metallurgist, the buyer, the seller of minerals, the investor in mineral property, and to the legislator who should know the resources and conditions of production in every country, this work is absolutely indispensable. This is the third volume of "The Mineral Industry," and brings the subject up to date. The work describes the occurrence and character of deposits in which the useful minerals are found, the characteristics of the mineral, the methods of mining, treatment of ores, characteristics of metals, costs, uses, statistics of production, import and export, consumption, review of mineral, metal and mining stock markets, assessments by mining companies and dividends from 1884 to 1894. To this are added extremely valuable technical articles by the most competent authorities, giving the most recent progress in each department of mining, metallurgy, and chemical industry, thus bringing the technical literature up to date. The tables of itemized cost production of many of the minerals and metals afford information of the utmost value to all interested in the in-