RECENTLY PATENTED INVENTIONS.

Railway Appliances.

TRAIN STOPPING DEVICE. — John B. Gross, Hoboken, N. J. A moving train is, by means of this device, designed to be stopped automatically when moving into proximity of an open switch, draw or other point of danger, the steam being shut off and the air brakes applied to bring the train to a standstill. The mechanism comprises principally a valve connected with the train pipe for applying the brakes and means for supporting the valve directly from the axle of the locomotive or tender, in connection with a valve-operating lever adapted to be actuated by a track mechanism. The same inventor has obtained a further patent on a train stopping device, relating principally to the track mechanism necessary in the operation of the foregoing improvement. The invention consists essentially of a signal arm, which swings over the roadbed, and is journaled in a bracket erected on the ties, there being also supported on the bracket a mechanism connected with the shaft of the arm and with the switch or draw.

CAR JOURNAL LUBRICATOR.—Sampson Walker, Winnipeg, Canada. A hanger suspended from the box has a horizontal member extending beneath the journal, on which turns and slides a loose roller pressing against the lower face of the journal. The roller has on its face a layer of cotton wicking and turns in oil, with which the lower portion of the box is filled. The construction is such that the device cannot be accidentally displaced, while it can be quickly and accurately adjusted to apply the oil evenly to the journal and does not require any kind of packing.

Electrical.

ELECTRIC SWITCH. — Joseph H. McEvoy, Waterbury, Conn. This invention provides a peculiar construction and arrangement of rotary contacts with positive actuating mechanism and an escapement or intermittent stop mechanism for conveniently and quickly turning on or cutting off any number of electric lamps, motors, heating apparatus, telephone or telegraph instruments, etc. It is also adapted to the use of cutting off all circuits leading into a building in case of fire and can be connected through electro-magnets which operate the shifting lever by wires running to thermostats at different points, so as to be automatically operated in case of fire or a great rise in temperature.

SUPPLY SYSTEM FOR ELECTRIC RAILWAYS.—Wilton F. Jenkins, Richmond, Va. The main feed wire, insulated throughout its main portion, is firmly secured alongside the outer side of the rail by a special form of clamp, and at intervals of six or eight feet is a bared, looped portion, adapted for engagement by the brush or contact piece upon the car, a removable cap fitting on the extremity of the contact portion to receive the frictional wear of the brush. The latter is formed to extend between two of the feed wire contacts, so as to be always in touch with one of them, a wire leading from the brush to the motor on the car.

GAS ENGINE ELECTRIC IGNITER. — Frank E. Tremper, New York City. Permanently separated rigid electrodes are, according to this invention, insulated in the cylinder, the electrodes being formed with sharp-edged heads at their inner ends inside the cylinder, while a flexible sparking strip is held insulated on the reciprocating piston and adapted to make contact with the heads of the electrodes. The device is designed to ignite the charge in the cylinder always at the proper time, a premature explosion or failure of ignition being positively prevented, while at the same time the construction is simple and durable.

Mining, Etc.

ORE SEPARATOR.—Charles F. Willsie, Ogden, Utah Territory. A blast fan is connected with one end of a casing, at one end of which is a hopper, and a series of connected pans containing quicksilver is arranged on the bottom of the casing, agitating wheels being mounted to revolve in the pans, above which is a series of hinged gates. The improvement is more especially designed for dry placer mining, to conveniently and quickly separate the precious metals from the sand without the use of water. Electricity is applied to the plates and pans to electrically charge and give life to the quicksilver and keep it from flouring, and lamp heat applied under the pans, or other means, to facilitate the separating of the precious metal from the sand.

Mechanical.

TOOL FASTENING. — Robert Douglas, Fall River, Mass. This invention provides means of securing files and other tools to wooden handles. The tapering shank of the tool carries on its end a hard metal collar, and the shank, with its collar, is adapted to be driven into a previously made recess in the handle, the collar fitting very snugly at the inner portion of the recess, and the outer end of the recess being engaged by a portion of the tapering shank, whereby the tool is firmly held in place and prevented from turning.

WEAVING ELASTIC FABRICS.—Samuel Brown, Easthampton, Mass. This invention provides a method of weaving an elastic fabric, on one face of which is a frill woven integral with the body. The warp for the body is formed in two sections, arranged one alongside the other, and the warp for the frill is similarly arranged, there being two distinct sets of harness for the main fabric and two sets for the frill or ornamental part. Only a single shuttle is employed in weaving the entire fabric, the shuttle passing alternately over corresponding sections and under the other sections, so as to carry the weft thread alternately over and under alternating sections of the warps for both the body and the frill.

PICKER PROTECTOR.—John Johnson, Chester, Pa. This is a simple and durable device adapted to properly protect the picker against breaking, and designed more particularly for use on picker staffs formerly patented by the same inventor. Connected with the picker stick of a loom is a spring device adapted to counteract the movement of the stick in one direction and return it, the device being formed of two portions and a stop, whereby one portion of the spring is relieved of further strain before the end of the movement of the picker stick, and the remaining portion is subjected to a suddenly increasing tension to check the movement of the picker stick and prevent breakage of the picker.

BELTING.—Karl Kuchler, Aussig, Austria-Hungary. This is a woven belting formed of wire and fibrous material interwoven to present the wire to one face and the fibrous material to the other face of the belt, the fibrous material being carried over to form the selvedge of the belt, and a protective border being secured to the outer face of the edges. This belting is designed to be very inexpensive, pliable, with the minimum of "stretch," and the quality of "hugging the pulley."

SAW TEMPLET.—Benjamin F. Spooner, Orange, Texas. To afford improved facilities for examining and marking saws, to correct faults in the saw blade by means of the usual hammering process, is the object of this invention, which provides a stock or holder in which is adjustably held a flexible band, with means for adjusting to the desired curve.

MACHINE FOR FORMING SPIRAL WIRE SPRINGS.—William B. Jackson, Portland, Oregon. This invention relates to springs used for making bed mattresses, upholstering and other purposes. To illustrate and explain the various details and combinations of parts embraced in the improvement has required a patent which has seven sheets of drawings and twelve printed pages of specifications and claims. The machine is arranged to automatically coil the wire into a double spiral and to fasten the ends of the wire upon the end coils.

Agricultural.

POTATO DIGGER. — Hamilton Pray, Clove, N. Y. Attached to the rear of a plow of any approved construction is one or more chain drags, some of the links carrying prongs arranged in a novel manner, constituting an operating agitator or whirl as the chain is drawn along. The whirl also has the tendency to throw the potatoes farther out to the sides of the furrow, keeping them on the surface of the ground and preventing their being covered up by the loose rolling earth.

LAND PULVERIZER. — Benjamin S. Sexson, Cincinnati, Ind. The main frame of this machine, with its drive wheels and axle, supports and operates a vertically swinging frame carrying rotary cutters or pulverizers adapted to be held at any necessary height and to turn easily through and pulverize the soil. Several of the pulverizers are provided to adapt the machine to different varieties of soil and to obviate replowing on any soil which has been once plowed, and the construction of the pulverizers is such that they may be cheaply made and easily repaired.

CONVEYER BELT FOR HARVESTERS.—Delos W. Storms, Western, Neb. This belt has diagonally located slats of greater thickness at their grain ends than at any other point of their length, the slats being constructed of a leather body and having a capping or covering of sheet metal. The construction is designed to obviate any falling out of the grain and insure its delivery to the elevator or the various packers of the binder straight, or in such manner as to insure its proper binding.

Miscellaneous.

SAFE.—Frank Crawford, North Urbana, N. Y. The door of this safe is made so that alarm will be sounded in case it is attempted to drill into it, or so that a cartridge may be exploded to kill or seriously injure the one operating the drill. Means are also provided whereby, when the safe door is locked, a cartridge will be automatically presented to a hammer, the cartridge being removed out of the path of the hammer when the door is opened in a proper manner. The alarm mechanism is so inclosed within the door as not to be visible.

PACKAGE ENVELOPE.—Martin Hess, New York City. This is an envelope to be attached to packages and to contain a bill or messages to go with the package. It has scallop-like projections along its margin to receive a cementing compound, so that it may be readily applied to a package, and a line of perforations, to permit the ready removal of the envelope, which remains sealed after it is detached.

LADDER.—Russell D. Hetrick, William T. Wilson, and Edward Rowe, Indiana, Pa. This is a step ladder in which continuous braces of bent wood engage the steps and the sides, the brace extending from side to side of the ladder, which is very strong and light. It also has a back support with rungs, whereby the ladder may be used by two persons, and the parts are readily separable to form two ladders when desired.

WRINGER ROLLER.—Otto W. Walscheid, Jersey City, N. J. The rubber roller of a wringer has, according to this invention, a bearing sleeve held within it and adapted to turn loosely on the wringer shaft, end nuts screwed into the sleeve being provided with flanges to abut with the ends of the rollers. This construction is designed to overcome the friction strain by the slipping on the shaft of the strain-bearing sleeve of the roller.

BRICK PROTECTOR.—Nils Olson, Superior, Wis. This is an improvement on a formerly patented invention, providing sheds or protectors with folding wings or roofs, that the yard may always be kept dry and work proceeded with in rainy weather. Gutters are arranged to carry away the water shed by the wings or roofs, and means for covering the alleys between groups of protectors, the wings being raised separately or simultaneously as desired.

BOTTLE FILLING APPARATUS.—John Jackson, Lonsdale, R. I. This is an improvement on a former patented invention of the same inventor, providing means whereby a number of bottles may be simultaneously filled without spilling, whether transparent or not, there being separate filling tube of correct size for each bottle, and there being connected with the source of supply reservoirs adapted to hold a predetermined quantity, with means for cutting off the connection while the bottles are being filled and turning it on after they are filled.

SCULL PROPELLER.—George O. Adams, Firth, Neb. Two sets of sculling blades are jointed to independent hubs at the rear of the boat and arranged to revolve in opposite directions, with their axes above the level of the water, the blades being arranged to open or expand and descend partly into the water, or to close up partly out of contact with the water. Great effectiveness in propelling may thus be obtained, the boat being steered by rotating only one blade.

ANIMAL TRAP.—Joseph Nelson, Nauvoo, Ill. Sliding between vertical guides of a suitable frame is a weight adapted to be suspended by a bail connected with a pivoted locking arm, the bait being so held that the stepping of the animal upon a tripping platform beneath will free the weight to drop on the animal. The trap is cheap and simple, easily sprung, and especially designed for catching small animals, as rats, mice, squirrels, etc.

Designs.

DRESS TRIMMING.—Julius Dreyfuss, New York City. This design consists of cord figures at each side of a central band figure, the figures appearing connected at each side by transverse cord figures arranged with return effect, a band figure appearing between the groups.

CUT GLASS DISHES.—Daniel Forbes, Brooklyn, N. Y. The designs of two dishes have been patented by this inventor. One design consists in a star formed of two intersecting equilateral triangles forming a hexagonal central field ornamented by a rosette, the apexes and exterior angles of the star being also ornamented by rosettes. The other design consists in a five-sided figure having each apex connected by two curved and crossing lines. From each a ex also leads a curved line, these lines forming five-sided spaces ornamented by rosettes.

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.

Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication.
References to former articles or answers should give date of paper and page or number of question.
Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.
Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.
Scientific American Supplements referred to may be had at the office. Price 10 cents each.
Books referred to promptly supplied on receipt of price.
Minerals sent for examination should be distinctly marked or labeled.

(5300) Z. B. writes: During the last summer, on the afternoon of a day in August, a large barn was burned here by lightning. The cloud passed over unattended by rain, and the occurrence was most sudden and terrifying. Workmen engaged in the open field in the vicinity, affirm they saw no lightning—a circumstance probably not unusual in similar cases. But they affirm, moreover, that the stroke upon the building was heard in advance of hearing the sound of the thunder. Could this be the fact? A. We see no inconsistency in the occurrence. The thunder may have been produced at a point remote from the barn.

(5301) A. A. F. T. asks: Have any people, apart from the native bushmen of Australia, ever acquired the art of throwing the boomerang successfully? As made by them, is the flat side of the weapon worked to a perfect plane? A. The Australians have brought the boomerang to its highest perfection. Other savage races have used them, but not of anything like the qualities of the Australian weapon. The flat side is not necessarily a perfect plane.

(5302) C. H. A. asks: 1. In making motor of same dimensions as in SUPPLEMENT, No. 641, except the field having but two coils wound on U-shaped core, same placed in upright position, what size and quantity of wire should be used? A. Use in the two coils the same amount of wire as is used in the four coils of the double magnet. 2. What difference would such motor have in speed and power to No. 641? A. There will be practically no difference. 3. Have you published an article on such motor? If so what issue? A. No.

(5303) P. B. P. sends sketch of an insect.—Answer by Professor Riley: The sketch is apparently intended to represent one of the "walking sticks" and probably the "thick-thighed walking stick" (*Diapheromera femorata*). I may be mistaken, as the sketch is crude, and only an examination of the specimen itself will enable a perfectly accurate naming. If it should prove to be the species mentioned, it is one of the most curious insects in our fauna, although not a rare one. It feeds upon the foliage of oak, hickory, and other forest trees. A long account of the life-history of the species will be found in my report as entomologist, Annual Report Department of Agriculture, 1878, pages 241-245.

(5304) A. G. L. asks: How should cut flowers be packed for mailing that will be four or five days in transit? A. In tin boxes, with a sheet of cloth well dampened with water.

(5305) T. K. writes: I observe very frequent reference in the SCIENTIFIC AMERICAN to the Fuller battery. I have tried, without success, to get information about this battery or to obtain the cells or parts of them here, as it seems to be quite unknown. I should therefore feel greatly obliged for a working description such as would enable an average amateur to construct the battery. I wish it for use with a bedroom glow lamp of about 6 volts. I use at present 3 cells plunge chromic acid battery, but the lowering and raising of the plates is troublesome, as the battery is only used occasionally for a minute or two at a time. How long does the zinc generally last? Is it free from local action when the circuit is open? Is chromic acid, bichromate of potash, or chromate of soda best for such batteries? A. We advise you to use the plunge battery, as the Fuller will not stand an open circuit. It is described in our SUPPLEMENT, No. 159. The zinc would last a long time, except that the solutions would mi xand local action would occur. Chromic acid or sodium chromate are preferred to the potassium salt.

(5306) W. W. P. writes: I have a double sulphate of nickel bath (about 20 gallons) which worked with perfection until lately. It now turns dark, and it seems to turn only in spots. I think the bath is strong enough, as it weighs 8½. The nickel scales where the black streaks occur. Please give me some receipt for taking foreign matter out of the solution. Could I overcome the difficulty by evaporating all the water and make a new bath with the nickel? A. By adding with constant stirring a saturated solution of ammonium sulphate to your bath, you can precipitate the double nickel-ammonium salt, leaving the supernatant liquid colorless. From the precipitate make up a new bath. (Unwin.)

(5307) F. P. writes: I would like to make some bottled soda water and I think I can do it by filling the bottle with water, putting in the proper amount of sodium bicarbonate, and lastly some citric acid in in crystals and corking it quickly before the acid can dissolve enough to act on the soda. What proportion of water, soda, and acid is best to use? Is there any way or material that would be better or cheaper that I could use without some special apparatus or tools? A. You require for three parts of citric acid, about four parts of sodium bicarbonate. For a pint bottle use two drachms citric acid and two and one-half drachms sodium bicarbonate. You may use the same quantity of tartaric acid instead of citric. There is no better way of doing without special apparatus.

(5308) "Beta" says: How many quart size Fuller cells would be required to operate an induction coil giving ½ inch sparks, and about how many hours would they give a stream of sparks continuously on one charge of cells? An average estimate only required. A. Four to six cells should answer. They would run it many days before exhaustion, but owing to the mixing of the solutions, it would gradually become polarized.

(5309) C. C. W. writes: Many remedies have been offered in your columns from time to time for the relief or cure of poisoning by oak or ivy, and all probably have merit. I have found however that a solution of boracic acid, applied frequently, as soon as the symptoms make their appearance, will do wonders, in nearly every case completely breaking up the threatened inflammation. If the trouble has made much progress, the effect of the solution is still very much better than any other preparation that I have ever seen used, rapidly reducing the pain and inflammation. It seems to be fairly entitled to the name of specific. A saturated solution of the acid in hot water should be made, and that diluted with from one-third to one-half volume of water for use.

(5310) M. A. T. says: 1. Near our city is a gas (natural) pipe line thirteen miles in length. The first three miles are laid with six inch pipe, the remaining ten miles with eight inch pipe. The pressure at wells is 100 lb., at entrance to city it is about 25 lb. The line is laid over a hilly country. Do you think it possible to use an air compressor that will give a uniform pressure of 75 lb. at the city? If possible, how large a one and how much power will it take to drive it with? A. The laying of a new line of eight inch pipe, or even ten inch pipe, will be the most economical way of increasing the pressure at the end of the line. We cannot assign a definite size or cost of a compressor plant without knowing the present flow and proposed increase from pumping, which will require a compressor and boiler plant large enough to handle the total output of the gas well, and although the differential pressure head would not be very great, say 50 pounds per square inch, the volume would require the operation of a very large compressor—possibly from $6,000 to $8,000 would cover the cost of the plant, and require from 150 to 200 horse power.

(5311) X. Y. Z., Melbourne, asks: Is it practicable to drive a small boat—large enough to carry two persons—say ten or twelve feet long by about two feet beam, a speed of five or six miles per hour by hand power screw? According to my calculation, a ten inch screw, with pretty open pitch and 200 revolutions per minute, would do. Am I near it? Otherwise which would be the handiest and best power for a small boat like that? Could it be driven by an electric battery? If so, what about cost of such battery? Boat to be used on narrow and crowded river and occasionally on open bay—Hoboons Bay—in fine weather. A. Although two m n are power nough for a speed as stated in so small a boat, there are mechanical difficulties in its application that will modify its possibilities. A ten inch screw at 200 revolutions per minute, will give a speed of nearly six miles. The necessary gear for transmitting the power from the hands to the screw will somewhat diminish the result in speed. The boat is too small for successful application of electric or other power.

(5312) J. T. D. asks: How can we make a pond hold water where the banks and bottom are almost clear sand where we wish to make the pond? The soil is about eighteen inches deep, then comes sand, and to get the depth we want will have to go nearly two feet in sand. A. If clay can be had in the neighborhood or within a reasonable distance, the pond can be made tight with a clay and sand puddle, which, if two parts clay to one part of the sand from the excavation is used, should be fairly tight if made six inches thick all over the bottom and sides, well compacted by ramming, then covering with six inches of the fine top loam. If required for gathering ice, it should have a top dressing of coarse sand or gravel to prevent the water from becoming muddy by wind agitation. If no clay can be had, hydraulic cement should be used in the place of the clay, and which may be mixed with the sand dry by raking into the bottom and sides and wetting by sprinkling, then a top dressing of loam and gravel as before.

(5313) T. H. writes: Can you give the point of lowest elevation on the dividing ridge between Lake Erie and Ohio valley—from Chautauqua Lake to Toledo? If you have not the data at hand, perhaps some of your readers have. Where shall I hunt to find the difference in the levels of Lake Ontario and Hudson Bay? There is water running out of Chautauqua Lake at all seasons, more, apparently, in a dry season than enters on the surface. Where is this water supposed to come from? A. The lowest point on the Ohio divide is probably along the line of the Wabash Canal. The Secretary of State, at Columbus, can refer you to authorities on the elevation. Lake Ontario is 234 feet above the level of the sea. Hudson Bay is supposed to be at sea level. There is no reliable survey across the highlands of Canada between Lake Ontario and Hudson Bay. Chautauqua Lake lies in a watershed of gravelly soil, through which the water percolates to the lake in springs beneath its surface.

(5314) P. R. L. writes: It is stated in "Experimental Science" that an induction coil may be used in charging a Leyden jar. I do not understand how a condenser may be charged by an alternating current. Please explain the process and principle. A. To charge a Leyden jar or battery, by means of an induction coil, connect the outer coating of the jar with one pole of the coil and the inner coating with the other pole, making the connection through a pair of pointed discharge rods having their points separated to such a distance as will permit only the direct current—that of opening—to pass. This current, which is of higher potential, is alone used for charging.

(5315) O. S. asks: 1. Will you give me directions how to mend rubber, so that it will hold warm water? A. The only way to mend rubber so that it will withstand hot water is to apply a patch consisting of a layer of vulcanized rubber, then vulcanizing the whole. 2. Which is the best for field magnets of motor 767, cast iron or malleable iron, the armature being soft annealed malleable iron? A. Use soft gray cast iron. 3. How many layers wire would you wind on the fields, and how close should the armature run to the fields? A. Wind magnet wire on the field magnet until the depth of the winding is equal to the depth of the winding on the magnet core. The armature should always remain as near the field magnets as possible, without touching.

(5316) J. S. F. asks: Has the United States passed a law and fixed a penalty for shuffling foreign coins? A. There is no law against the use or abuse of foreign coins in the United States.

(5317) J. B. R. asks: Is there always a draught up a tall chimney, and does this draught vary at times very much? If there are times when no draught at all is felt, please give conditions. If there is always a draught up a chimney, as some authorities say (even though fire is not present), why is this not perpetual motion, and, if the chimney is large enough and sufficient chimneys were built together, could not power be produced? A. The draught of cold chimneys up or down depends entirely upon a small difference of temperature between the outside and inside, or the effect of the wind blowing across the top, which generally produces an updraught. Its power is very feeble, and cannot be considered perpetual motion, because it is due to natural causes.

(5318) J. W. S. writes: Do you think there is anything in the very common notion among practical mechanics that pumps raising water to a considerable height must be down close to the water to do their best work? I have changed a deep well pump from near the water to 26 feet up from the water without any apparent loss, and it seems to me that if the piston is sufficiently tight to raise the water up to the reservoir from the piston, that the water must follow up to the limit of atmospheric pressure for elevation, at which the pump is placed; however, the contrary opinion is widespread, and I would be much obliged for your judgment in the matter. A. The general opinion in regard to the position of pumps above the water surface for best work is founded upon long experience with all kinds of pumps, good, bad and indifferent. A perfect pump will work well up to 30 feet, with the only drawback of liberating air constantly from the water. With the least air leak below the pump valves, the efficiency is lessened, although not perceptible to the eye. The best principle is the best practice in setting a pump chamber, viz., close to the water.

(5319) T. D. D. writes: I have been a steady subscriber for your valuable paper for over 45 years, and wish you would make careful answer to the following questions: What would, in your best judgment, be the per cent. of saving to the track and roadbed and rolling stock of any through line of railroad if an endless rail could be used? If 90 foot rails were used, allowing the weight of three cars at once, or an engine and two cars, would not the rails be less liable to creep when there was no open space or joint, thus avoiding the pounding of the wheels at the ends of the rails? A. Continuous rails would be a most valuable consideration in railway economy and the comfort of the traveling public, but there is a physical har to a continuous rail; the expansion and contraction of such a rail by changes of temperature would destroy the track. To make any computation of the saving of such rail in the face of its impossibility, would be futile. A 90 foot rail is a more reasonable condition, but will not avoid variation in length by changes in temperature, and consequent creeping. It would, no doubt, save two-thirds of the damage due to pounding and batterment of the rail ends. On the other hand, the difficulties of transportation of 90 foot rails is a serious bar to their use.

NEW BOOKS AND PUBLICATIONS.

SHORTHAND INSTRUCTION AND PRACTICE. By Julius Ensign Rockwell. Bureau of Education, Circular of Information, No. 1. 1893. 8vo. Pp. 205, tables.

The shorthand alphabets which date from the year 1602 on, are very interesting. The bulk of the work is taken up with statistics of instruction in shorthand in various institutions for the scholastic year ending June 30, 1890.

A CHAPTER ON CHOLERA FOR LAY READERS: HISTORY, SYMPTOMS, PREVENTION, AND TREATMENT OF THE DISEASE. By Walter Vought, Ph.B., M.D., Medical Director and Physician in Charge of the Fire Island Quarantine Station, Port of New York. Illustrated with colored plates and wood engravings. Philadelphia: The F. A. Davis Co. 1893. 12mo. 110 pages. Price 75 cents.

This timely little work is offered to the public in the hope that it will enable the reader to obtain a clear and comprehensive idea of a disease which at present, there is every reason to believe, will appear this summer in our own country. The diagnosis of the disease, its treatment and its prev ntion are all described with a view to being read by laymen. The preventive doctrines are based on common sense, and, if followed, would without doubt tend to keep the person free from the dreaded disease during an epidemic.

THE SHAKERS. By C. E. Robinson. East Canterbury, N. H. 1893. 8vo. Pp. 134. Illustrated. No index.

The full title of the work is "A Concise History of the United Society of Believers called Shakers." There is always more or less interest exhibited in communistic societies, and the aim of the present work has been to collect facts in relation to the Shakers, and state them so clearly that the world may know the true life and habits of this most singular people.

THE COMPASS. Edited by William Cox. Vol. II. 1892-93. New York: Keuffel & Esser Co. 1893. 8vo, cloth. Pp. 192. Illustrated. Price $1.75.

The subscription price of the journal is $1.00 a year. The *Compass* is devoted to surveying, mechanical drawing and mathematics. New instruments, formulas, etc., are described. The journal is handsomely printed in blue ink and is well illustrated. The *Compass* is very carefully edited, much more so, in fact, than many journals of larger size.

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August 22, 1893,

AND EACH BEARING THAT DATE.

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Car, freight, E. E. Pratt 503,874
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Ceiling or wall, H. Lehmann 503,721
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Churn, J. H. H. Duncan 503,654
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Cigarette machine, J. B. Duke 503,562
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Clothes drier, J. C. Beckley 503,577
Clothes pounder, S. & F. G. Davis 503,852
Clutch, W. G. Austin 503,824
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Conveyer, endless chain, G. W. McCaslin 503,870
Conveying apparatus, T. S. Miller 503,800
Cooker valve, E. P. Doty 503,787
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Corset stay, M. W. Heintz 503,909
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Cover for show barrels, hinged, W. R. & E. O. Hind 503,930
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Cutting tool or tool heads, shank for holding rotary, S. E. Freeman 503,656
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Deborning implement, R. G. Rader 503,617
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Distilling volatile substances, apparatus for, T. G. Du Pont 503,586
Diving apparatus, G. W. Smith 503,753
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Electric light switch, E. Blasser 503,905
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Electric meter, F. L. Gregory 503,595
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Garment protector, E. E. Fitler 503,841
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Gas for heating purposes, apparatus for producing, and utilizing, G. A. Watson 503,817
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