

RECENTLY PATENTED INVENTIONS.

Electrical.

AUTOMATIC WEIGHING SCALE.—Charles F. Wood, Richmond, Va. Combined with a hopper having a door and a scale beam is an electromagnet with circuit arranged to lift the door by the contact of the scale beam, the magnet being movable to follow the beam and lift the door by mechanical as well as electrical action, there being also a movable receptacle and a bag holder, with transfer funnel, supporting lever and operating magnet, to transfer the contents of the weighing receptacle to the bag. The improvement is especially designed to facilitate putting up (in packages a small quantity of seed or other loose merchandise, doing the work quickly and accurately, and giving to each package a uniform weight.

ROAD VEHICLE.—John W. Moakler, Denver, Col. This is a vehicle adapted to be propelled by storage battery or other generator of electricity, a series of storage batteries being connected to a regulator and switch below the vehicle seat, by which the current may be properly directed to the motor. The improvement consists mainly in the application of a worm screw fastened directly on the shaft of the armature or motor, which saves power and simplifies the construction.

LIGHTING SYSTEM.—Charles L. Morey, Centralia, Ill. In the door casing, according to this invention, is arranged a casing containing an electric lamp, a push button sliding in the casing being adapted to close the circuit and light the lamp. The improvement constitutes a simple form of door attachment designed to afford sufficient light to enable one to select the proper key, at the same time illuminating the door lock to facilitate finding the keyhole.

Railway Appliances.

CAR COUPLING.—James H. Swindell, Reidsville, Ga. This coupling comprises a novel form of latch and cover plate fitted on the drawhead with pin openings for the coupling pin and a connected guide arm coinciding with those of the drawhead, and the latch is connected with a spring. The longitudinal movement of the drawheads in bumping together, is designed to operate the devices supporting the pin and the link holder, the released pin then falling to complete the coupling. The device will readily couple cars of different heights, the coupling in all cases being automatically effected.

Agricultural.

SULKY PLOW.—Joseph Willmann, New Braunfels, Texas. According to this invention a plow block is clipped to and fitted to slide upon the axle, the plow beam being secured to the block, while a lever pivoted for movement transversely of the sulky has link connections with the plow block. The mechanism is capable of attachment to any form of wheeled plow, and by its means the plow may be shifted laterally by the driver during the act of plowing to change the cut or avoid obstructions, etc.

Miscellaneous.

BALLOT REGISTERING DEVICE.—Urban G. Iles, Wellston, Mo. This improvement is designed for use in connection with a ticket conforming with the Australian ballot, the size of the ticket being such that it fits snugly in a pocket or recess of the voting machine, where it is placed after the voter has punched holes opposite the names of the candidates for which he does not desire to vote. The machine has registering wheels and pins arranged for mutilating the ticket in such a way that it may be mechanically counted, accurately registering the votes and exhibiting the number of ballots cast, so that the vote may be ascertained at any time.

UMBRELLA AND CANE HOLDER.—Heinrich Egberts, Bremen, Germany. This improvement comprises three connected and co-operating parts—a plate having recesses to receive the umbrella handles, canes, etc., cruciform rotatable devices pivoted adjacent to the recesses and projecting into them as they rotate, and spring pawls or detents that engage the arms of the devices. To hold the umbrella or etherarticle, the lower end is placed in the trough at the bottom and the upper end pushed into one of the recesses, thus swinging one arm of a cruciform piece out of the way, and causing another one to swing into its place to properly secure the umbrella.

PHOTOGRAPH HOLDER.—Dion T. Elmer, Monroe, Mich. A flat slotted brace has one end formed into an eyelet, and a rod pivoted between the members of the brace is adapted to lie within the slot, the rod having hooks at its opposite ends to engage a card. The improvement forms a very cheap and simple device to advantageously hold and display a photograph or other card, and it may also be used as an easel, or to hang a card or photograph upon the wall, while it may be folded flat in small space, admitting of being sent conveniently through the mail.

TRUNK LOCK.—William J. Davis, Charlotte, N. C. This is an improvement in trunk, box or valise fastenings, in which the main lock coacts with other attachments to effect a locking adjustment when the main lock is operated. By means of the improved lock a trunk lid may be locked at three different points, the improvement may be applied to secure the hinged and folding portions of a valise together, locking them at three points, and requiring the main lock to be unlocked and hasp pieces vibrated therefrom to release the supplementary locks near the ends of the receptacle.

WEIGHING SCALE.—John J. Hickey, New York City. This invention relates to an apparatus for weighing liquids, comprising a platform supported on a vertically sliding carrier and a counterbalancing lever carrying at one end the carrier and at its other end weights, each representing a certain predetermined measure. The apparatus is simple and durable, and is arranged to automatically and accurately weigh any desired measure of a liquid, according as the weights are placed.

WATER HEATING APPARATUS.—Adolph Schier, Chicago, Ill. This is an apparatus more

especially designed for heating water for use in connection with soda water fountains, or for facilitating the making of hot drinks. It comprises a shell with hollow heads connected by tubes, with steam supply and return pipes for heating the water in the shell, and a return pipe is also connected with the faucet for drawing the hot water, whereby all water rising and cooling in the pipe will be returned, and only hot water drawn.

BASKET GRATE.—Erick J. Jahanson, Chicago, Ill. This grate has openings below which are arranged sliding racking grates, connected together for simultaneous operation. A central grate section is mounted to turn in one of the openings, and connected with the sliding racking grates below the other openings. The grate is very effective in operation and is more especially designed for use in fireplaces.

METALLIC SOLE AND HEEL PLATES.—Ferdinand Davison, Richmond, Va. This invention provides a machine for cutting these plates from a continuous sheet or band, the plates being cut and formed at one operation. The machine has a fixed cutter and a fixed head block, the latter having prong-forming dies, while a reciprocating plunger die having a cutting edge opposes the fixed cutter, and lateral extending portions are adapted to lap the fixed forming dies.

FIRE ESCAPE.—Gothard Lowenstein, Brooklyn, N. Y. A drum to be located on a building carries a flexible ladder, with a locking device by which it may be released from within the building, while connected with the ladder are pivoted prop pieces which fall into place when the ladder is let down for use, rendering the ladder stable, so that it will afford a safe means of descent. Means are provided for housing the ladder wrapped on the drum, so that it may be very readily and conveniently brought into service.

HOSE STRAP FASTENER.—Bernard W. McKenzie, San Diego, Cal. This is a double lever-like tool for applying and securing wire straps or ties to garden and other hose, to unite the hose to the couplings. The device saves wire and the brazing of the ends of the wire fastener together, with the consequent liability of the strap to break at the points where it is brazed together, and the fastener is readily adaptable to hose of different thickness or diameter.

HOSE BAND.—Isaac St. C. Goldman, Los Angeles, Cal. This is an improvement in bands adapted to be fastened to a hose to bind the hose upon the spindle of a coupling or other attachment to which the hose is to be fastened. It comprises a flexible body having parallel wire members, with a curved lever at one end, and may be quickly applied without the use of any special tools, and adjusted to fit hose of different sizes. Its operating lever exerts a progressive and increasing strain upon the band as it is tightened, the arrangement being such that the mere operation of the lever and bending of the fastening strap serves to bind the band in place, so that an auxiliary fastening is not necessary.

CHAIN OR CABLE GRIP.—Gilbert Gagnon, Pincher Creek, Canada. Combined with two levers loosely connected at one end, and loosely connected with two intervening grip blocks, are two link bars shackled to the other end of the levers and in turn connected together at opposing ends. The device may be quickly connected with the towing end of a logging chain or cable, and furnishes means for the ready connection therewith of a traction motor or a team of draught animals, for the sliding movement of the logs in any direction.

FENCE BUILDING MACHINE.—Benjamin O. Johnson, College Hill, Miss. This is a simple and durable machine, designed to do its work quickly, and that does not need skilled labor to operate it. It can be readily transported from place to place, and separates the wire strands to receive pickets, and twists or closes the strands around the pickets, to hold them firmly in the desired position. The construction is such that the strands of wire adapted to support the pickets are under constant and uniform tension while the machine is in operation.

FENCE.—John T. Patton, Highland, Ohio. This is a fence made mainly of wire, the invention providing means whereby the sagging of the fence may be prevented, while the wires may be quickly, conveniently, and effectually stretched and held under tension by a connected stretching device until they are secured in position.

WIRE STRETCHER.—George B. Steen, Ionia, Kansas. This device consists of an elongated body slotted at one end and provided with a handle at the other, a clevis being journaled on the body, and there being a ratchet connection between the clevis and the body. It is an extremely cheap and simple device, easily operated, and not readily wearing out, and it will effectually stretch a wire up to the post to which the stretcher is attached and hold the wire until it is fastened.

THILL COUPLING.—Alonzo P. Dodge, Huntington, N. Y. The axle clip of this coupling has on its under side a forwardly extending lug having in its inner side a socket entered by a knuckle or crank on the thill iron, a bolt with a web at its headed end passing through the knuckle and the lug of the clip. The device is very cheap and simple, facilitates the ready attaching or detaching of the thills, and the construction is such that there will be practically no wear on the coupling bolt, and the parts cannot become accidentally displaced.

SAFETY SNAP HOOK.—Alfred J. Sloan, Clyde, N. Y. This is an adjustable spring-jawed frame, between the jaws of which is pivoted a hook bar, the body of the hook and free ends of the frame limbs having a peculiar conformation that adapts them for efficient service as a snap hook, while provision is made to lock the hook bar in closed adjustment when this is desired.

WIRE STAND.—William Kadletz and Robert B. Stocker, Lemhi Agency, Idaho. This stand has a vertical body portion formed of parallel strands of wire, branching at their lower ends, where they are bent inward to form feet, while they also branch at their upper ends and terminate in eyes carrying suspending rings. A cheap, strong, and convenient stand may thus be made, especially adapted for use as a washstand.

ARTIFICIAL CLAW FOR FUR TRIMMINGS.—Abraham and James Jacobson, New York City. The invention comprises a plate having rigid claws simulating natural claws projecting from the fur, a strengthening of the fur at the paw being effected by means of the plate, thereby increasing its durability and preserving its appearance, while effecting a saving of time and labor in the attachment of the claws.

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 WHITE CITY BY LAKE MICHIGAN. A souvenir in albertype. 31 photo-views. 12mo. New York: A. Wittenmann. 1893. Price 50 cents.

This little album is worthy of a large sale. The thirty-one albertypes are soft and artistic. We quote from the publisher's circular: "These views were taken on the spot quite recently, and the collection is sold at fifty cents."

ANLEITUNG ZUR PHOTOGRAPHIE FÜR ANFÄNGER. G. Pizzighelli. Fifth edition. Halle an der Saale, Germany: Wilhelm Knapp. 1893. 142 woodcuts, 254 pages.

This interesting little volume treats in a very popular manner the various subjects relating to photography and is more especially intended for amateurs and beginners. On the hand of a large number of illustrations and excellent text it will not fail to readily initiate the beginner into the wonderful mysteries of photography. The volume contains excellent formulas, both for the beginner and professional photographer.

DER NORD-OSTSEE KANAL. By C. Beseke. Kiel and Leipzig, Germany: Lipsius & Fischer. 1893. Three charts, tables, and graphic illustrations. 148 pages text.

The little volume treats the gigantic enterprise of connecting the Baltic with the North Sea by a maritime canal undertaken and almost completed by the German government. Maps showing the general construction and location of the canal are given, together with a history of the building and expenses of the canal, also its importance for commercial and war purposes.

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SCIENTIFIC AMERICAN BUILDING EDITION.

JUNE, 1893.—(No. 92.)

TABLE OF CONTENTS.

1. Elegant plate in colors, showing the residence of Joseph P. Beach at Pine Orchard, Conn., erected at a cost of \$1,200 complete. Floor plans and two perspective elevations. Messrs. Munn & Co., architects, New York.
2. Plate in colors showing the handsome residence of Seward W. Jones, at Newton Highlands, Mass., erected at a cost of \$9,000 complete. Perspective view and floor plans. Messrs. Rand & Taylor, architects, Boston, Mass. An attractive design.
3. A handsome colonial dwelling on Beacon Hill, Boston, Mass. Two perspective views and floor plans. A model design. Messrs. Shepley, Rutan & Coolidge, architects, Boston, Mass.
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6. A dwelling erected near Longwood, Mass. A modern design. Mr. Austin W. Pease, architect, Boston, Mass. Floor plans and perspective elevation. Cost about \$2,300.
7. The First Congregational Church at Plainfield, N. J., erected and furnished complete at a cost of \$15,000. Mr. Oscar S. Teale, architect, New York City. Perspective and floor plans.
8. A residence at Beardsley Park, Bridgeport, Conn. A very picturesque design, perspective elevation and floor plans. Cost \$5,500 complete. Mr. A. H. Beers, architect, Bridgeport, Conn.
9. Views showing the exterior of the twelve story Boyce Building, at Chicago, put up in thirty-nine days. The cost of the structure was \$300,000.
10. The Fifth Avenue Theater, New York.—Views of the auditorium, the Broadway lobby, the Twenty-eighth Street foyer. Mr. Francis H. Kimball, architect, New York.
11. Miscellaneous Contents: New lien law in California.—An improved spring door hinge, illustrated.—To estimate brick work.—Foul water main.—An improved woodworking machine, illustrated.—An improved scaffold truss, illustrated.—Sawdust building bricks.—Some beautiful arch work, illustrated.—Mineral wool in buildings.—Wood mantels, illustrated.—Sound titles for real estate.—Durability of cedar.—Tin from tin scrap.—Improved steam heater, illustrated.

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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.

(5160) W. McG. asks: 1. What can I use in stove reservoir pipes that are used to heat water for a bath room, to prevent lime from gathering in the pipes? A. Strong caustic soda solution boiled in the pipes will loosen the scale, which may be washed out. If you can take the pipes apart, a sulphuric acid wash may break up the scale, and then wash out. 2. Can you give me plans to build a cheap Bell telephone? Can I use a battery with it? If so, what is the best way to construct it? A. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 142, for complete full sized drawing of a working telephone, 10 cents mailed.

(5161) J. A. S. asks: 1. What are the ingredients of rubber paint and what are its advantages, if any? Is it durable? A. Rubber paints made by macerating rubber in any of the solvents until it has a pasty consistency; next dissolving in linseed oil until the solvent is evaporated, then mixing by grinding, a suitable quantity of pigment. This paint is said to be durable. 2. Is there any practical electric motor run by a battery that would be a success in the hands of users of small power who know nothing about electricity, and how about the cost of running same? I see it is proposed to run sewing machines, corn shellers, washing machines, etc. Can it be done cheaply? A. Electric motors driven by primary batteries are generally unsatisfactory, owing to the trouble and expense attending the maintenance of the battery. 3. How is Portland cement made? A. See SUPPLEMENTS 405, 386, 84, 901, 281.

(5162) F. P. H. asks: Is there anything I can use instead of borax to braze cast iron? I get quite a number of small cast cog wheels to repair; some times some of the cogs are broken and it would help me wonderfully to be able to braze them in, instead of dovetailing. A. For brazing cast iron use copper instead of brass. Borax for flux.

(5163) L. C. J. asks how to straighten hardened steel. A. In hardening and tempering tools they sometimes spring, to the great annoyance of the workmen, and not seldom the tool is reheated and re-hardened. In most cases this may be avoided. To straighten a piece of steel already heated and tempered, heat it lightly—not enough to draw the temper—and it may be straightened by blows from a hammer, if the character of the tool will admit of such treatment, or, as in case of a tap, it may be straightened by a heavy mallet.

let on a hard wood block. Although the steel when cold would break like glass with this treatment, when slightly warmed it will yield to moderately heavy blows un-

(5164) W. S. writes: 1. I hear that it costs \$2 a day to take cameras into the World's Fair grounds. Is that true? A. Yes. 2. Do they allow a camera taking a picture over 4x5 in the grounds? A. They do not, except in the case of photographers representing illustrated journals. Such photographers must obtain a special permit from the official photographer. 3. How many caustic potash batteries would it take to run a 3/4 horse power electric motor. Cell contains 2 copper plates 4x5 inches, and 1 zinc plate 4x5 inches. Batteries to be coupled up like a bichromate plunger battery. A. It will probably require not less than 20 cells. 4. What size wire would it be necessary to wind the motor to adapt it to the caustic potash battery? A. No. 20 wire will probably be about right. The motor should have a resistance of from 20 to 30 ohms, depending upon the manner in which the battery is connected up. 5. Does the battery make more fumes than the bichromate cell? A. No. 6. How many hours will a bichromate plunger battery work 6 cells, size of plates 1 1/2 inch by 4 inches? Will it work a motor for 5 hours? What is the voltage and amperage? A. 5 to 6 volts. The E. M. F. of each cell is 2 volts. The amperage depends upon the resistance in the circuit.

(5165) W. S. P. writes: 1. In regard to the induction coil in the home medical battery, what kind of wire is used in the primary coil, and how many feet? A. It will probably require 5 or 6 feet of No. 36 wire. 2. What number of wire or what kind is used in the secondary coil? How many feet in the secondary coil? A. 12 or 15 layers of No. 36 silk-covered magnet wire, 150 to 200 feet. 3. Do you think Grenet battery fluid is as good as elect opoion fluid for a Fuller bichromate battery? A. It is the same thing. 4. Is the Grenet fluid any good when it becomes black? A. No. 5. Could you give me some directions for making 3 pints of electropoion fluid? A. Make a saturated solution of bichromate of sodium in water, and slowly add one-fifth its bulk of commercial sulphuric acid.

(5166) C. T. V. asks: 1. What kind of electricity is that generated by the dynamo? A. Dynamic. 2. Why is so much precaution exercised in the stringing of fire alarm wires when only one wire is exposed to the dampness? A. Because the ground constitutes the other conductor, and any leakage from the wire to the ground impairs the efficiency of the line. 3. Can electricity, when grounded, be compared with water in regard to seeking its level? A. The earth is generally considered as an electrical reservoir; therefore the water analogy might be regarded as the proper one.

(5167) D. C. B. asks: 1. What is the E. M. F. of a nickel-plating dynamo of 40 gallons capacity? A. 7 or 8 volts. 2. About what size wire should I use on an electro-magnet to be used with this machine? A. This depends altogether on the size of the wire on the armature, but of course it will be necessary to use large wire, on account of the heavy current generated by the machine. 3. What is the cause of reverse current in plating dynamos, and how remedied? A. The secondary current from the plating vat. 4. It is a series-wound machine with a Siemens armature. I think its name is the "Little Giant." What change in the winding would adapt it for general experimental purposes? A. Wind the armature with finer wire. 5. What would be the power of the machine then? A. Without more data we cannot reply to this query. 6. Should the commutators of a dynamo change brushes when the poles of the armature are directly opposite the poles of the field magnet? A. It depends upon the winding of the armature. If the wires run from the coil straight out to the armature, the changes should take place about halfway between the poles. 7. Is plaster of Paris a good insulator? A. When dry it is a fair insulator.

(5168) W. E. S. asks: 1. Will you give me the formula for charging a Bunsen battery? A. Make a saturated solution of bichromate of sodium in water; to this slowly add one-fifth its bulk of commercial sulphuric acid. 2. Will zinc melt? A. Zinc melts at 690° Fah. 3. Can it be moulded smooth? A. It can be cast smoothly in metal moulds. 4. In what number of the SCIENTIFIC AMERICAN does it tell how to make an induction coil? A. You will find a full description of an induction coil in SUPPLEMENT, No. 160. (5169) H. W. B., Jr., writes: I have seen described in the Notes and Queries of your paper a battery composed of sheets of zinc and copper with blotting paper in between; will you tell me what the paper is wet with, how thick should the zincs and coppers and the paper be to secure the best results? What would be the voltage, amperage and resistance of one composed of ten sheets of zinc and ten of copper, 10 inches by 6 inches? A. One half of the sheets in the battery referred to should be saturated with a solution of zinc and the other half with a solution of sulphate of copper. The blotting paper saturated with the sulphate of copper should be in contact with the copper, and that saturated with the sulphate of zinc should be in contact with the zinc. The zinc plates may be one-eighth of an inch, and for the copper any thickness will do, provided it is stiff enough to maintain its contact with the blotting paper. The voltage is about the same as that of a gravity, practically 1 volt, but the amperage is very small, owing to the resistance of the battery. Probably you will be able to secure a current of 3 or 4 amperes with such a battery.

(5170) G. R. asks the cause of holes about the size of a tackhead and larger on the sides of a stereotype plate, such as used on newspapers, after the tails are cut off. These holes form whether metal is poured hot or cold. A. The holes are caused by air, which in the operation of casting does not escape from the casting box.

(5171) A. Z. writes: 1. In Wimbushurst electric machine described in "Experimental Science," could vulcanite be used for rotary disks? Would they be better than glass? A. Vulcanite can be used for this purpose, but it deteriorates with time. 2. Is standard supporting journal and axles of wood or metal? A. They are of wood. 3. Are tinfoil strips connecting brushes in electric connection with axle? A. No. 4. In trying to make Leyden jars we can hardly find any bottles or jars

or window glass that will retain the electricity. What kind of glass or how prepared will answer the purpose? A. Use soda glass. Lead glass is a conductor of electricity, although a very poor one. The glass jar should be very thoroughly dried and varnished with shellac before being coated with tinfoil.

(5172) O. C. C. asks: 1. Please tell me the gross weight, charged, of a primary battery maintaining (for motor power) after a fifteen minutes' run about 1/4 horse power. A. 50 to 60 pounds. 2. The shortest period in which such a battery (after say 15 minutes' service) will regain its prime strength? A. The battery will not of itself recover its original strength; it must be recharged. The process of fully recharging requires from 6 to 7 hours. 3. Which are the lighter and most serviceable—rubber or glass cells? A. Rubber cells.

(5173) T. T. writes: Recently during a thunder storm here a church was struck by lightning. The steeple was struck first, then the interior was visited, leaving a long streak where it had scorched the wall paper. It was afterward noticed that it followed an irregular gold stripe in the wall paper from the ceiling to the floor. Can you explain why this occurred? A. A very slight conductor serves to lead lightning in any direction, on account of its extremely high E. M. F.

(5174) M. C. P. writes: I wish to ask you a question in regard to my wood saw that I have just rigged up. It has a balance wheel weighing from 100 to 125 pounds, 26 inches in diameter, is a web wheel. I have been running it at about 1600 revolutions per minute. I run it with a horse power; the speed is sometimes higher, sometimes lower. Now, is it dangerous to run it at that speed? The machinist who cast the wheel said it was of good quality. My saw is 20 inches in diameter, and if I reduce the speed I am afraid it will not saw well. If it is not asking too much, please give me some information in regard to the matter. A. The tensional breaking strength of cast iron in the usual foundry practice cannot be trusted at more than 16,000 pounds per square inch. The safe load is made at one-sixth of the breaking strength per square inch or 2,666 pounds. The strain on the rim of your fly wheel at a speed of 1,600 revolutions per minute is 3,000 pounds per square inch, or a margin of a little over one-fifth of the breaking strain. This may be safe for good iron and a web wheel without flaws.

(5175) T. D. McC. asks: 1. In the Blake transmitter, is the fine wire wound next to core or on the outside? A. In the Blake transmitter the fine wire of the induction coil is wound upon the coarse wire. 2. Does primary circuit in an induction coil always refer to the inner circuit? A. Not necessarily, but according to the usual construction, the primary or coarse wire coil is placed on the core inside of the secondary coil.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

June 27, 1893

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these Patents.]

Table listing inventions with names and page numbers, including items like 'Abdominal supporter, H. G. Suplee', 'Air lock, D. E. Moran', 'Alarm, See Fire alarm', etc.

Table listing inventions with names and page numbers, including items like 'Cable, chain, G. Lindenthal', 'Calendar, watch charm, pocket, and wall display', 'Camera, See Photographic camera', etc.

Table listing inventions with names and page numbers, including items like 'Joint, See Rail joint', 'Knitted garment and makin same, W. A. O'Brien', 'Knitting machine, E. J. Franck', etc.