RECENTLY PATENTED INVENTIONS. Engineering.

TRACTION ENGINE DRIVING GEAR.-Thomas C. Robinson, Jr., Ipava, Ill. This gear is strongly made and simple in arrangement, to facilitate ronning the engine with more power and less speed over rough roads and up hills, and with increased speed over smooth and easy roads. Combined with guideways on the shell of the boiler, and fixed driving and drivengears is an adjustable slide between the gears, on which are journaled a single gear wheel and a double gear wheel to be readily engaged with or disengaged from the fixed gears. The cog wheels are designed to be so proportioned as to give any desired fast and slow speed.

TURN TABLE.-Gabriel Rohrbach, Del Rio, Texas. In turn tables for turning locomotives, this invention provides a simple lever attachment by which one man may easily turn the table and its load, the lever mechanism being easily locked in place when not in use, and not being likely to get out of order. Upon a revoluble bed carrying a circular track is mounted a bracket in which a vertical oscillating shaft is turned by a lever, a catch plate oscillating on the rail having vertical teeth to engage the rail, and there being a crank connection between the catch plate and the shaft and a lever mechanism for shifting the angle of the catch plate.

Mechanical.

DRILLING MACHINE.—Louis Reichert, Scranton, Pa. This machine has two aligned rotatable and sliding spindles carrying drills adapted to slide and rotate, while a series of independent spring leaves act on the outer ends of the spindles, the leaves being reinforced one by another to gradually increase the pressure on the drill. The machine is designed chiefly for boring eveglasses, and provides for but a slight pressure on the spindles at the beginning of the boring, to avoid chipping the glass, the pressure being afterward graduated as desired.

FELLY PLANER.-William R. Dunn, Alton, Ind. In a suitable frame are slides adapted to move up and down, felly-supporting beds being hung on shafts in the upper and lower ends of the slides, each supporting bed having a segmental holder for supporting the felly to move it in contact with a revoluble cutter head journaled in stationary bearings, friction rollers pressing the fellies in place on the holders during the time the cutter heads are cutting. The planer is of sim-ple and durable construction and designed to correctly and uniformly plane the inner and outer faces of the felly to the desired diameter.

CRUSHING AND GRINDING ASPHALT Rock.-John H. Tabler, Russellville, Ky. In this machine a revolving feed drum is mounted over a heating chamber. the material fed into one end of the drum being heated as it passes through and is discharged into crushing and grinding rolls with different contact faces of different di. ameters, differentially spaced apart and journaled to rotate at different speeds, whereby the continuously fed material is successively crushed into small particles. Steam and hot water are mixed with the material as it is being crushed to prevent clogging or adhering to the rolls.

Railway Appliances.

NUT LOCK FOR RAILS.-Jefferson D. Tynes, Fort Smith, Ark. This improvement comprises a base plate having apertured washer-like ends adapted to fit over the bolts, a spring metal key bar being fixedly held at its center on the base plate, with its opposite ends held for a free twist movement and projected beyond the face of the washer portions of the base plate. The device is a double lock nut, especially designed to lock nuts against the fish plates of rail joints.

Miscellaneous.

PROCESS OF MANUFACTURING GAS.-Gustaf M. Westman, Hackettstown, N. J. A furnace of special construction is provided by the inventor for carrying into effect this process, which consists in passing a mixture of gases through iron oxide in a reducing furnace to produce iron sponge, the mixture consisting partly of new formed gases and partly of gases previously passed through the iron oxide and afterward heated and carbureted, then passing steam through the iron sponge to reconvert it into iron oxide and produce hydrogen, and passing the latter through glowing coke to take up and combine with its carbon.

STORE SERVICE CARRIER.-James R. Pollock, Mansfield, Ohio. This invention provides a simple, economical and easily operated apparatus, so arranged as to conveniently brake the car on its return to the stations, to avoid unnecessary noise. The apparatus has a grade track formed with inclines and supported upon depending hangers, and combined with the track propelling line for moving the car is a cylinder in which is fitted an air-tight plunger, there being connections between the plunger and the propelling line where- | bracing the inner ends of each of the ribs against the opby the plunger will retard or brake the return of the car, and, by the vacuum produced beneath it, aid in actuating the propelling line to drive the carriage,

placing the check tab when used up without requiring an entirely new book. The check tab carrier is connected to the casing within the pocket, to slide in and out, and is formed of a plate having a slide and points or hooks for engagement with the tab.

FIRE ESCAPE. -C. P. Elieson, New York City, and Francis A. Pellas, Greytown, N. Y. According to this improvement swinging ladders are adapted to be dropped from various balconies to form a pas sageway from the windows of a building to the ground, means being provided for automatically opening the balcony doors by the movement of the ladders, the doors and ladders being so geared that one acts as a counter-balance for the other. A whole vertical series of ladders may be quickly released and dropped together. A building provided with this improvement will ordinarily apnear to have only the usual balconies under the windows

FIRE ESCAPE OR LIFTER. - William Wellens, Oldham, England. This is a simple and inex pensive apparatus by which weights or loads may be easily transferred from one floor to another, while also affording a fire escape, and a device for use as an ordi nary ladder, to facilitate the painting and repair of bnildings. As a fire escape, it has upper and lower shafts journaled in brackets to support drums carrying an endless belt ladder in front of a building opposite the windows, the ladder moving, under control of a brake, to convey to the ground persons stepping on it. When used to support workmen the ladder is locked in fixed position, and one form of the apparatus provides for its use on a portable frame adapted for lifting.

AWNING.-Catherine Leclercq, Lima, Pern. This awning is constructed on the principle of Venetian blinds, and is adapted to be folded in a box fastened over the door or window on which the awning is to be applied. The invention consists of a head mounted to turn and connected by tapes with the slats, supporting rods connecting with either side of the outermost slat so as to hold the slats in a ventilating, shelter ing position, or in a closed position during rainy weather.

METALLIC SHELF.-Charles W. Marquardt, Detroit, Mich. This shelf consists of tubular brackets engaged by tubular braces, connecting plates secured to the brackets and braces, and a shelf plate secured to the brackets and resting on the braces, the entire device being cheaply manufactured and conveniently assembled, and designed to be very ornamental in ap-pearance, for use as a metallic mantel, bracket shelf, table top, etc.

PACKING CASE. - David F. Griffiths, New York City. After the parts of this case have been nailed or screwed together they cannot be separated with out showing that the parts have been tampered with but the nails or screws are entirely concealed by parts which act as braces or ties. The case has a continuous dovetail or under-cut groove surrounding it at each end through which the nails or screws are driven, and through which a tie or strap is afterward passed and its ends sealed. When the straps have been carefully removed in opening the case, the case may be again used for packing.

HANGING OR SWINGING CHAIR.-Sam uel F. Purington, Brunswick, Me. This chair has forked lower extremities removably connected with a platform support, and the arms are removably connected with swinging supports and with the back of the chair, the arms having a pivotally connected link at one end and an angle iron at the opposite end, the link and angle iron having slots receiving studs on the swingingsupports and on the chair body. These chairs may be quickly aud easily connected with their supports, and disconnected to be folded compactly for shipment.

FASTENING SLIP COVERS ON FURNI-TURE .-- Henry Scher, New York City. This inventor provides a device whereby the covers may be firmly and smoothly held on the furniture, especially on the seat preventing an untidy appearance. The improvement consists of spring fasteners held on [a rod, the fastening devices being located along the edge of the seat, back or other part, and where the cushions of two such parts meet the spring fasteners are adapted to be forced, with the slip cover, into the crease between the cushions.

COMBINATION FOLDING BED.-Edward E. Murphy, Madison, Wis. The legs of this bed are automatically unfolded when the bed is lowered and locked when the bed is down. The casing is finished off in the style of a wardrobe, with cabinets on each side of the casing, one intended for bedroom articles and the other fitted up as a writing desk or secretary. Means are provided for tightening the mattress spring and for hold ing the bed clothes when the bed is folded up. The invention affords a cheap, simple, and safe folding bed, with few operating parts, and one in which the balancing veights are dispensed with.

UMBRELLA CANE.-Rufus Waples, Jr., New York City. This is an improvement on a former patented invention of the same inventor, providing for posite rib or ribs by a pivotal attachment which will permit of freely closing and opening. A metal strap plate, ring or flange, may also be durably attached to the ends of the ribs to greatly increase the strength with out adding sensibly to the bulk, making possible also much more rapid manufacture. When the cane is used as a walking stick its canopy is entirely concealed. HAIR CURLER.-Sylvester K. Mathews, Albany, N. Y. This is a device designed to be manipu lated with one hand, and cause the hair into which it is introduced to curl or wrap around it as the curling section is manipulated, the hair so encircling the curling section that the section may be withdrawn from the hair and the latter will remain in curl. The curling section consists of a cage in which are longitudinal parallel maced rods.

NEW BOOKS AND PUBLICATIONS.

MODERN AMERICAN PISTOLS AND RE-VOLVERS. By A. C. Gould. ("Ralph Greenwood.") Boston: Bradlee Whid-den. 1894. Pp. iv, 222. Illustrated. Price \$1.50.

This most interesting book treats of modern pistols of the single shot type, such as the Stevens rifle, the Remngton, Derringer and others, interesting either histori cally or practically, of revolvers of the most modern type of target and pocket revolvers, and gives not only their points of construction, but treats in considerable detail of relative accuracy of different weapons. In addition to illustrations of the same and of targets produced by them. numerous portraits of celebrated marksmen, many of them in shooting attitude, are interspersed through the volume.

ELEMENTARY LESSONS IN STEAM MA-CHINERY AND THE MARINE STEAM ENGINE. By Staff Engineer J. Langmaid and Engineer H. Gais-ford. London and New York : Macford. millan & Co. 1893. Pp. xv, 267. Price \$2.

This work is prepared for naval cadets on the English ship Britannia and the syllabus of subjects dealt with is based on the plan of the London University. The work is very attractive and general in the treatment of its sub-ject, and is really a work rather for reading than for hard study. Quite a striking feature is found in one of the cuts, Fig. 84, which represents the section of a steam cylinder and D valve, the valve and piston both being movable, so as to make the cut in some sense a working model.

DYNAMO AND MOTOR BUILDING FOR AMATEURS, WITH WORKING DRAW-INGS. By C. D. Parkhurst. New York: The W. J. Johnston Company, Ltd. 1893. Pp. vi, 163. Price \$1.

Lieut. Parkhurst has a name familiar to our readers from his articles on electrical apparatus which have been published in our SUPPLEMENT. This book will, we doubt not, be welcomed by many constructing amateurs, who are interested in motors and dynamos

SCIENTIFIC AMERICAN BUILDING EDITION. APRIL, 1894.-(No. 102.)

TABLE OF CONTENTS.

- 1. Elegant plate in colors showing a handsome colonial residence just completed at Ashbourne, Pa, for Charles Salmon, Esq. Two perspective views and floor plans. Cost complete \$11,500. Frank R. Watson, Eeg., Philadelphia, Pa., architect. An elegant design.
- Plate in colors of a Chicago dwelling designed for an 2. architect's home, and recently completed at Morgan Park, Chicago, Il. Two perspective views and floor plans. Cost \$4,200 complete. Mr. H. H. Waterman, architect, Chicago, Ill.
- 8. Two perspective views, in terior view and floor plans of the elegant residence of Judge Horace Russell recently completed at Southampton, Long Island. Mr. Bruce Price, New York City, architect. An admirable design in the colonial style of architecture,
- An English cottage at Buena Park, Chicago, Ill. Two perspective views and floor plans. Mr. James Gamble Rogers, Chicago, Ill., architect. A unique design in the Gothic style of architecture.
- A residence at Southport, Conn. Two perspective views and floor plans. A picturesque design in the modern colonial styleof architecture, Mr. W. W. Kent, New York City, architect.
- 6. A cottage at Freeport, Long Island, erected at a cost of \$2,600 complete. Perspective view and floor plan. A unique design. Mr. W. Raynor, Free port, L. I., architect.
- 7. A residence at Rogers Park, Il. Two perspective views and floor plans. Cost \$3,948 complete. An attractive design. Mr. C. W. Melin, Chicago, Ill., architect.
- 8. Two perspective views and floor plans of a dwelling rently erected at Rogers Park, Ill., at a cost of \$3,730 complete. A unique design. Mr. Robert Rae, Jr., Chicago, Ill., architect.
- 9. A cottage at Morgan Park, Ill., 'erected at a cost of \$2,968 complete. Two perspective views and floor plans. An attractive design, treated in the English cottage style of architecture. Mr. H. H. Waterman. Chicago, Ill., architect.
- 10. The new St. James M. E. Church at Kingston, N. Y. Perspective and plans. Architects, Messrs. Weary & Kramer, of New York City and Akron, Ohio Estimated cost, \$70,000. Style of architecture,

[April 14, 1894.

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

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Names and Address must accompany all letters, or no attention will be paid thereto. This is for our

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.
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(5939) J. M. H. asks: 1. How are carbon plates made ? A. See query 5942. 2. Please tell me how many gravity cells it will take to charge a storage cell about the size of a two quart jar, and how long will it take? A. Allow three gravity cells, and one or two days.

(5940) H. A. M. writes: 1. We have a naple sugar camp and use three old-fashioned pans, 26 inches wide and 12 feet long. Would they evaporate more by having them partly covered ? A. The pans should not be covered, but will evaporate faster by continual stirring with a rake. A hay rake makes a good stirring implement. 2. Can I put under one of them a coil of 1¼ inch gas pipe to heat the sap before it reaches the pans ? How many feet of pipe would be required to heat 1,500 gallons in about 15 hours, sap to be taken from tank by the side of 'the pan ? (Good dry wood used.) A. We do not recommend the coil under the pan. It interferes with the proper management of the heat of the pan and is not easily cleaned. A supplementary pan placed at the rear, a little higher, so as to draw into the ngar pan, is preferred. It can be heated by extending the flue and chimney. 3. What is the best way to cleanse maple simp? A. The white of eggs frothed by beating with a little of simp, stirring thoroughly in the sugar pan, and skimming off the scum is the usual process for clarifying maple sugar. Milk is also used. Much stirring whitens the sugar while granulating. 4. The Odd Fellows here have a two-story hall, and they cannot rent the ground floor on account of the plainness with which they can hear below what is going on upstairs. Can it be deadened in any way? The building is a two-story frame, sealed with inch lumber, and the upper floor is double, with a 2 inch strip between them. A. A thick paper felting, or strawboard, laid on the floor and another floor laid on the strawboard, or below ceiling, with a thin second ceiling, with strawboard or felt between; or, what would be better, furoff the ceiling, and lath and plaster; this will deaden the sound from above. (5941) C. N., Vienna, Austria, asks: 1. What should be the proper size and pitch of a propeller wheel for a steam yacht to attain greatest speed possible, fitted with a compound engine of 60 indicated horse power, making 300 revolutions per minute? A. The size of propeller suitable for your engine and its proposed

ADJUSTING DEVICE FOR BICYCLES.-John H. Prince, Carroll, Montana. This device is to facilitate tightening the driving chain and to hold the spindle of the driven wheel always in parallel position, relative to the pedal or crank shaft, so as to cause the wheel to run true. It consists of a frame having in its forked ends racks meshing with gear wheels secured on a spindle turning on bushings sliding in the forked ends of the frame. a screw screwing in the frame engaging one of the bushings, and there being nuts screwing on the ends of the spindle and abutting on flanges formed on the boshings.

· CHECK BOOK.-Isaac B. Alter, Rossville, Kansas. This invention consists of a casing having a pocket and a check tab adapted to be fastened to the inside of the pocket, the arrangement being such as to send name of permit of conveniently removing the checks and of re-

NOTE.-Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please of any Architectural Publication in the world. Sold by send name of the patentee, title of invention, and date all newsdealers.

11. Miscellaneous Contents : Vibrations of tall buildings -Artificial stone .-- A simple and efficient dumbwaiter, illustrated.-An improved woodworking machine, illustrated.-The New Era electrical gas burner, illustrated .-- P. & B. Ruberoid roofing, sheathing papers, and paints .-- Improved woodworking machine, illustrated.-Foot power mortiging machine, illustrated.-A large sheet metal ceiling, illustrated.

The Scientific American Architects and Builders Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; forming, practically, a large and splendid MAGAZINE OF ABCHITEC-TURE, richly adorned with elegant plates in colors and with fine engravings, illustrating the most interesting examples of Modern Architectural Construction and allied subjects

The Fullness, Richness, Cheapness, and Convenience of this work have won for it the LARGEST CIRCULATION MUNN & CO., PUBLISHERS, 361 Broadway, New York,

speed should be about 6 feet, more or less, to suit the model and allowed dranght of the vessel. The pitch should also vary with the lines of the boat, longer for a sharp, fine-lined boat than for a boat of burden or a tugboat. A pitch of 1-3% to 114 times the diameter is about the range for different models and uses of steam vessels. For speed of engine as stated, probably a pitch of 8 feet the for a 6 foot wheel in a boat built for speed can be recommended. See an excellentwork by Kunhardt on "Steam Yachts and Launches," \$3 by mail. 2. Please give simplest method of determining and finding the pitch of a propeller wheel. A. There is no simplemethod of determining the size or pitch of a screw propeller. The resistance of the vessel, depth of draught, required speed, and power are all factors for size and pitch of screw propellers. 3. Where can I get the patent Bartlett wheel in America ? A. We do not find that the Bartlett wheel is made under that name by makers of propeller wheels in this vicinity.

(5942) E. P. says: Will you kindly tell me how the carbon for arc lights is made and what is the material used ? A. Clean pieces of coke are selected, p lverized, and passed through a fine sieve. It is then thoroughly mixed with from one-sixth to one-eighth its b lk of wheat flour, both being in a dry state. The mixture is moistened with water containing a small percent age of molasses. It should be allowed to stand for two or three hours in a closed vessel to prevent the evaporation of the water. At the end of this time the mixture may be pressed into moulds of any desired form, then removed from the moulds and dried, slowly at first, afterward rapidly, in an ordinary oven at a high temperature. When the rods or plates thus formed are thoroughly dried they are packed in an iron box, or, if they are small, in a crucible and completely surrounded by coke dust. The box or crucible must be closed by a non-comb stible cover. Then place in a fire and heat to a red heat for an hour or so, then allow the box to cool, remove the carbons, then boil for half hour in thin sirup or molasses water, then bake in an ordinary oven and recarbonize as already described.-From "Experimental Science." This same applies to battery plates.

(5943) J. T. T. asks: 1. For formula for making sealing compound suitable for dry batteries. A. Use resin 4 parts, gutta parcha 1 part, melted together with a little boiled oil. 2. For full directions for amalgamating zinc cup, such as used in dry batteries. A. Do not amalgamate it, as amalgamation renders zinc very brittle. If you must do so, wash the inner surface with a slightly acid solution of mercury nitrate. 3. In attempt ing to amalgamate a cup of zinc, sed dilutesulphuric acid (acid 1 part to 10 parts water) for cleaning zinc and then applied few drops mercury on inside cup, rubbing it over surface by means of brush, but bottoms of cans would unsolder and drop out. On examination of zinc found it like rotten, being easily pulled in pieces. What caused this? A. You used too much mercury, but it will always make zinc brittle. 4. Whatamount of No. 32 cotton-covered magnet wire is necessary for making an electro-, having core % by 2 inches, using Norway iron 1 A. Wind it to a total diameter of 34 inch.

(5944) H. M. writes: In mounting condensers for magic lanterns, how close should they be placed together ? A. Place them, if double, with convex sides inward and generally not more than a quarter of an inch apart. If there are three, you may determine the proper setting by trial.

(5945) J. C. M. asks for the best method of tempering the steel for the magnets used in the Bell telephone. A. Heat to a cherry red the ends only of the steel bars, plunge them in water to harden them, and draw the temper to a dark straw color or bronze bordering on purple.

(5946) R. F. W. asks: 1. In making dynamo described in SUPPLEMENT, No. 600, will not brass do just as well as bronze for the vokes ? A. Brass will answer the purpose, but not as well as bronze. 2 Copper as well for the commutator as bronze ? A. Yes, provided it is hard rolled. 3. If you have any paper giving full working drawings and complete description of the construction of a folding canvas canoe, will you please give the number? If you have no paper on a folding canoe, can you give me one on an ordinary canvas canoe? A. For an answer to this query we refer to SUPPLEMENT, No. 181, which contains a full description of a folding canvas canoe.

(5947) G. W. asks: 1. Can I obtain a sufficient spark to ignite the gaseous mixture in an oil engine by winding copper wire around a soft iron core? A. Yes. 2. If so, what size core and length of wire will be required ? A. On a bundle of No. 18 softiron wires 34 of an inch in diameter and 8 inches long, wind No. 20 wire to the depth of 11/4 inches.

(5948) S. L. P. asks how dents are taken out of cornets and other brass horns. A. If the dents are inaccessible, so that tools cannot be applied to them on the inside of the horn, you can take them out after a fashion by oldering to the deepest part of the dent a wire and drawing the metal out, afterward unsoldering the wire and cleaning the surface of the brass. If the part of the horn containing the dents is of uniform diameter, you can draw through the horn a spherical metallic button that will fit the tube. If you desire a perfect job, it will be better for you to send the horn to an instrument maker.

No. 1.	
Sodium hyposulphite 10	ounces.
Alum potash 21	ounces.
Potassium sulphate 1	ounce.
Sodium sulphate 5	ounces.
Water (distilled) 80	fluid ounces.
Dissolve the hypo. and the alum in th	e water; then add
the sodium and potassium sulphate; al	low it to stand for

No. 2.	
Gold chloride	15 grains.
Lead acetate	6 grains.
Water (distilled)	8 ounces.

(5051) W.C. S. writes 1 In the SCIEN-	Bed springs, device for tightening woven wire,	Gymnastic appliance for school desks. T. Beasing 5
TIFIC AMERICAN for February 24, 1894, is given a dis-	E. M. Easting	Hammock, T. B. Thomas
scription of a magneto call bell for telephones. Could I	Berth, ship's, E. Lawson	Harp, W. W. Batchelder, Jr
make a cheaper call ? A magneto bell is rather expen-	Bicycle frame, G. F. Washburn	Shaw
sive. A. On page 162, current volume of SCIENTIFIC	Bicycles, variable driving gear, S. C. Eisenhart 517,739 Bill or account holder J. B. Bidder	Harvester, W. McCloskey
you will find a description of a simple telephone call, which	Billiard table, A. Woebs	Harvester finger, cotton, A. Levedah]
is effective for q iet places. 2. Will you give me a receipt	Bit for cutting rosettes, E. Gollins	Hat forming mould, J. Marshall
for a stove polish ? A. Mix 5 parts, by weight, of black	Boller. See Steam boller.	heater. See Bedwater pipe nexter. Water beater.
lead (plumbago), 5 parts of boneblack, 10 parts of iron sul-	Boller cleaning compound, F. Berger	Mills
phate. Mix thoroughly and make into a paste with	Boller sput, W. S. Salpe 517,658 Bolt. See Door bolt.	Leating systems, heater for hot water, F. E. Dack
(5050) Nich manta to make a sign how	Bottle, Friedman & Keiler 517,800 Box. See Match box.	Hooks for stretching curtains, m chine for mak- ing, F. Steinmann
(J952) NICK WAILS LO MAKE a Sign Hav-	Brake. See Car brake. Elevator brake. Vacuum brake.	Horse rake, C. S. Sharp
be chipped or torn off and left rough. No particular pat-	Bridge, draw, M. G. Schinke	Hosiery, Sills & Wood
tern. A. Clean the glass thoro ghly, then apply a solu-	Buckle, G. E. Adams	Ice cream freezer, J. M. Skipper
tion of good glue or of gelatine to the portions to be	Clark	MacDonald
chipped. On drying, the glue or gelatine will contract	Rurgiar alarm, electric, Frame & Morden	Insulating compound, A. Gentzsch
	Bustle, E. Case	Insulator, L. McCarthy
(5953) Y. M. C. A. says: Would you	Button fastening machine, J. C. F. Dick 517,604	Jack. See Lifting Jack.
Scientific Ancesican, how to resilver a mirror?	Button setting apparatus. W. B. Merritt	Journal box, oll drawer, J. H. Surtin
See page 183 of the issue of the SCIENTIFIC AMERICAN	Can discharge attachment, oil, W. Mathews 517,618	Kiln. See Continuous kiln. Drying kiln.
for March 24, 1894.	Can key, self-opening, E. Norton	Lickson
(5954) J. R. S. asks: 1. What is the re-	Cans, manufacture of metallic preserving, A. W. Living ton	Label holder, W. G. Duckett
ceipt for making laundry starch and mode of using same	Cane carriers. apparatus for charging sugar, O. Carr	Lamp collar, L. J. Atwood
so as to produce a gloss when applied with a hand iron,	Cane juice, defectating, J. Koebig	Lamp, miner's safety, Graham & Chapman 5 Lamps, adjustable desk bracket for electric, Gar-
such as used in families doing their own washing and	Car coupling, R. Dinsmore	lock & Marshall
dissolved in 10 onnees of water: 1 onnee each of white	Car coupling, L. H. Segrest	Lathe centering device, R. L. Levin
wax and spermaceti are melted, and while liq id are rub-	Car coupling, B. M. Whitlock	Leather skiving machine, A. J. Tewksbury
bed with the solution of borax and 10 drops oil of cloves	Car fender and automatic br ke, W. L. Fitzhugh. 517,598	Life-boat, C. Baswitz
to make emulsion, mixing them thoroughly. A teaspoon-	Car safety guard, freight, M. Elzsimmons 517,517	Line fastener, W. S. Twitty
It may also be applied after starching by rabbing over	Cards, pictures, etc., support for, Dalsheimer &	Lock. See Hasp lock. Switch lock. Sash lock.
the starch with a cloth and then polishing with the iron.	Carriage, baby, M. L. Barr	Lubricating device, H. P. Humphrey
The starch mentioned above is the ordinary dry starch	Case or cabinet, J. F. Ohmer	Lubricator, J. Longinus
made into a paste with hot water. 2. What is a formula	Cask pitching apparatus, C. Bernreuther 517,515 Celling or wainscoting board, J. A. Hensel 517,521	Lumber or composition material, artificial. G. S. Maybew
coarsely nowdered. 75 parts: sniphate of iron. 4216 parts:	Cell case blanks, machine for cutting out, F. D. Maltby	Magnetic separators, feeding mechanism for, G.
over this pour 2,000 parts of cold water. Digest from	Cereals, preparing, W. Onderdonk 517,479 Chair. See Folding chair.	Mail transporting apparatus, R. A. Morgan, Jr 5 Match box and cigar tip cutter, combined, T. W.
twenty-four to forty-eight hours. Strain through a cloth	Chalking apparatus, line, C. E. Anderson	Foster
and add 24 parts gum arabic.	Chopper. See Cotton chopper. Churn, O. C. Byler. 517.431	Metal shaper, combination, H. J. Hendey
(5955) C. W. H. writes: I am going to	Churn, J. H. H. Duncan	Meter. See Grain meter.
lay 1,800 feet of piping to carry water from a pond to a	Clamp. See Raliway rali clamp. Clay articles, glaze for B. Frey. 517.609	Milk purifier, R. H. Casswell
Well. The fall is about 10 feet in the 1,500, with about a 6 foot head, one turn at right angles. What I want to	Clock, J. Smith	Moulding apparatus, J. Shaaber
know is this • Which would convey the most water under	Cloth, paper, etc., machine for cutting, folding, and pling F Meisel	Mole trap, M. E. Parham
above conditions-one pipe 4 inches in diameter the en-	Clothes wringer, C. Wheeler, Jr	Motor. See Electric motor. Water motor. Motor A. E. Whitaker
tire distance or begin with a 6 inch pipe 600 feet, then 4	Coal elevators, self-dumping mechanism for, A. Walker. 517.782	Musical instrument, mechanical, G. B. Kelly
the distance? Also, about how much water would flow	Cock, gauge, G. Binder	Nut lock, J. H. Burrows.
through each of the above systems in 24 hours ? A.	Coffee mill, O. Leinbrock	Nut making machine, A. Urban
With a continuous 4 inch pipe you will have a flow of	Continuous kiln, P. L. Youngren	H. H. Grenfell.
inch. 4 inch. and 3 inch pipe in equal parts. while sections of 6	N. Ayres	Packing for rock drilling engines, G. M. Githens.
a flow of 129,000 gallons per day. If 1,200 feet of 4 inch,	Cot and wardrobe, combined, S. C. Hopkins 517,458	Pan. See Evaporating pan. Panar baga making W A Lorong
with 600 feet of 6 inch pipe at the pond end, you will have	Coupling. See Car coupling. Shaft coupling.	Paper feeding mechanism, E. Dummer
a flow of 180,000 gallons per day.	Crate, berry, P. A. Winbrow et al	Day
(5956) P. W. C. says: What is the	Crusher. See Bock crusher.	Peeling table, fruit, F. M. Anderson
formula for the combined toning and fixing solution for	Curtain fixture, C. E Goodrich	Pencil sharpener, A. Werner.
mixing for use, but is always ready ? A.	Cutter. See Band cutter. Stalk cutter.	Photographic camera multiplying attachment, D.
No 1	Digger. See Potato digger.	Pin. See Insulator pin. Scarf pin.
Sodium hyposulphite 10 ounces.	Door bolt, A. Angus. 517,512	H. Gowing.
Alum potash 21% ounces.	for, B. G. Goss	Ransome
Potassium sulphate 1 ounce.	etal	Planter, hand corn, P. Schendzelos
Water (distilled)	Dresses for protecting bands of flowers, attach- ment for ladies", F. M. Fletcher	Pressure, apparatus for indicating and regulating
Dissolve the hyno, and the shm in the water then add	Drier. See Letter drier. Drying kiln, A. & P. Kimball	Pr nting machine, C. P. Cottrell.
the sodium and potassium sulphate; allow it to stand for	Dyeing by the aid of paramidodiphenyl min, A.	Pulley, expansible differential, W. Roney
two or three hours.	Weinberg	Pumping machinery, M. Foster
Gold chloride	Electric lights, system for controlling, W. F.	Rallway, conduit electric, H. A. Goreham
Lead acetate 6 grains.	Electric m otor, W. J. Still	Railway, conduit electric, W. F. Jenkins
Water (distilled) 8 ounces.	Electric motor governor, J. F. Winter	Railway crossing gate, G. C. & T. A. Corbin
Mix in the proportion of 8 ounces of No. 1 to 1 ounce of	Electric switch, C. F. Speed et al	Railway rail and joint, combination, W. H. McCormick
No. 2. The mixture is stable and the bath is always	Elevator, W. H. Rickabach	Railway rail clamp, D. B. Ruffner
(5057) D O M muitage I how a misse	Elevator brake, self-acting, G. W. Ludovici 517,755 Elevator gate, C. Stocker, Jr	Railway signal, C. C. Kahne et al
of common window glass: by breathing on one side of	Ellipsograph, G. M. King 517,522 Enamel for coating sheet metal, etc., J. Henne-	Railway switch, electrically-operated, W. S. Gavey
same the outline of a person is produced as though it was	man	Railway tie, R. Dinsmore Railway tie, J. Neafle
drawn ou with milk; but it evaporates with the dampness	Childs	Railway, underground conduit, W. F. Jenkins Railways, system of elevated and surface, C. H.
leaving the glass, and it is not visible again unless the	Engraving machine, H. A. Chase	Barrows Rake. See Horse r ke
to which you refer has been slightly etched with hydro-	Evaporating pan, S. A. Poche 517,765 Excavating or dredging machine, J. E. A. Braun. 517,726	Razor blades, etc machine for hollowing, J. Leresche
fluoric acid. The etching does not show when the glass	Every Exercise Strategy France Strategy	Reel. See Hose reel. Respiration, device for producing, J. M. Pressey
is perfectly dry, but moisture develops the image, which	Feedwater pipe heater, J. C. Shaw	Rheostat, A. J. Shaw
usappears as soon as the glass becomes dry.	Fence, barbed wire, L. Herweyer	Rock crusher, C. E. Wyman
	Fender. See Car fender. Fertilizer, S. B. Schenck	Rock drilling and splitting, G. M. Githens.
TU INVENTORS.	Fertilizer, phosphatic, N. B. Powter	Rolling roll, metal, W. E. Harris. Rolls for side bearing suspension rails. P. Ectol
of more than one hundred thomsand applications for pa-	Fi ter, C. H. Schultz, Jr	Roof or floor, fireproof, T. A. Lee
laws and practice on both continents, and to possess un-	et al	Rotary steam engine, W.M. Byrd
synopsis of the patent laws of the United States and all	Fir arms, detachable stock for hand, I. H. Reed. 517,555 Fish, live box for shell, 1. Mann	Sash fastener, P. C. Dolliver
contemplating the securing of patents, either at home or	Flanger, T. W. Macfarlane	Sash holder, C. S. Lee Sash lock and support, J. S. Henry
which are low, in accordance with the times and our ex-	Finid discharging apparatus, W. T. Messinger 517,550 Flushing appuratus, G. D. Ackley	Scale, druggist's weighing, E. Kelly
MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broad-	Folding chair, S. G. McCullough	Screen, See Windowscreen. Screen, L. G. Beers
πα, NOW LUID.	Fork cutter attachment, P. P. & J. Dustrud 517,796 Fruit cutting and pitting machine, J. F. Rehm 517,588	Secondary cell or battery, G. B. Henry

ppliance for school desks, T. Beesing 517,788 B. Thomas. 517,567 Shade hanger. 517,577 Batchelder, Jr. 517,723 S. machine for sharpening, J. L. 517,723
 ss.
 machine for sharpening, J. L. 547,810

 ing tooth, M. J. Todd.
 517,600

 W. McOloskey
 517,600

 otton, L. R. Turner.
 517,600

 nger, cotton, A. Levedahl
 517,600

 A. Diron
 517,680

 (mould, J. Marshall)
 517,670

 26 Wedwater pipe heater.
 517,700
 ventilating rooms, device for, C. tems, heater for hot water, F. E. 517,683
 bit,063
 bit,063

 elnmann.
 bit,063

 C. S. Sharp.
 bit,490

 J. N. Casson.
 bit,490

 J. N. Casson.
 bit,490

 J. N. Casson.
 bit,490

 J. N. Casson.
 bit,763

 Saparatus, I. Mossop.
 bit,768

 bit,990
 bit,768

 secer. J. M. Skipper.
 bit,768

 J. G. Stamp.
 bit,768

 Den M. Robinson.
 bit,769

 Mclarthy.
 bit,769

 J. G. H. Winslow.
 bit,769

 A. H. Winslow.
 bit,769

 bit, 2. R. S. Carr.
 bit,769
 retching curtains, m chine for mak-on key. ontinuous kiin. Drying kiin. Inet and churn, combined, Hodges & 517,631 517,809 517,536 517,465 517,536 517,729 517,748 Sable.... device, H. P. Humphrey.... J. Longinus... W. O. Nelson.... composition material, artificial. G. S. parators, feeding mechanism for, G. A standard s 517,734 517,619 517,564 517,814 517,824 517,558 517,712 517,805 517,769 517,769 517,728 517,534 517.779 517 .746 le, folding, L. Manrer. Je, fruit, F. M. Anderson. V. S. Mendenhall. pener, A. Werner. machine, G. B. Kelly. ic camera multiplying attachment, D. 517,684 517,755 517,78 517,75 517.73 sulator pin. Scarf pin. r use in making joints in cast iron, E. 517,611 u, man facture of monolithic, E. L. 517,808 nd corp. P. Schendzelos.... er, J. A. Buck... paratus for indicating and regulating H. Gartrell...... 517,789 517,487 517,510 cal. G. W. Price. incry, M. Foster..... 517,629 517,449 517,443 B. Dinsmore 517,443 B. Dinsmore 517,443 J. Neafle 517,443 J. Neafle 517,454 Iderground conduit, W. F. Jenkins 517,365 Iderground conduit, W. F. Jenkins 517,365 Iderground conduit, W. F. Jenkins 517,365 Horser ke es, etc. machine for hollowing, J. 517,464 517,453 517,454 517,453 517,454 517,454 517,455 Jose reel. 517.464 517,790 517,760 517,006 517,006 517,695 517,456 517,699 517,699 517,725

(5949) J. asks whether fish oil is injurious to rubber goods. Also what effect it would have when applied to rubber hose? A. Fish oil has a deteriorating effect on rubber. It tends to soften hose.

(5950) F. H. W. asks for a formula for a quick dry plate hardener, or something he can put on the plate that will dry rapidly by heat (without causing the film to run), in order to get a print shortly after development. A. The following is said to be a good gelatine hardener: The negative, after fixing and washing in the usual manner, is treated with a hardening solution composed of chloride of aluminum 5 to 12 grains, water 1 onnce. The stronger the aluminum solution, the greater the amount of heat the negative can stand without softening. The plate is immersed in the solution, and allowed to remain therein for a short time, and after immersion can be dried in sunlight or by artificial heat without danger of deterioration.

MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broad- way, New York.	Fork, W. L. I Fork cutter a Fruit cutting
INDEX OF INVENTIONS	Fruit gathere Furnace. Sec nace. Sm Furnace, E. E
For which Letters Patent of the United States were Granted	Furnace, F. E Furnace, fine Gauge. See I Game appara
April 3, 1894,	Garment and F. F. Lew Garment sup Garter adjust
AND EACH BEARING THAT DATE.	Gas engine, I Gas from crue Gate. See E crossing g
[See note at end of list about copies of these patents.] Accordion, J. Galleazzi	Gazette holde Generator. S Glass, appara King
Acid, purifying tannic, B. Reinus	Glass melting Grader and an Grading railw Grain meter.
Alarm, See Burglar alarm. Amalgamator, N. L. Raber	Grain meter, Grate, autom Wbeeler. Grinding mac
Band cutter and feeder, Lamm & Sicard	Grooving mad Gun, can e, R. Gun carriage
Bed rest, J. E. Plummer	Gun sight, C.

101 Droad	Folding (Hair, S. G. McCullough	Screen. See windowscreen.
-usord ros	Fork, W. L. Laffer 517,461	Screen, L. G. Beers 517,724
1	Fork cutter attachment, P. P. & J. Dustrud 517,796	Secondary cell or battery, G. B. Henry 517,455
	Fruit cutting and pitting machine, J. F. Rehm 517,588	Separator, See Ore separator. Soot separator.
	Fruit gatherer, J. K. Wo dward 517,786	Separator bowl, centrifugal, D. J. Davis
OTO	Furnace. See Bagasse furnace. Cremation fur-	Shade hanger, extensible, J. Joseph 517,750
OND.	nace. Smoke consuming furnace.	Shaft coupling, slip, T. L. Baumgarten 517,787
	Furnace, E. B. Coxe	Shelf, book, G. Wenker
	Furnace, F. H. Richards	Shingle machine. T. C. Davis
the	Furnace, fine ruel, C. Wegener 517,632	Sifter, ash, L. Youngquist et al 517.636
	Gauge. See Liquid gauge. Water gauge.	Signal. See Railway signal.
a l	Game apparatus, W. G. Burns 517.600	Skating rink, Mead & Clemens
-	Game apparatus, C. C. Clawson 517,436	Smoke consuming furnace, J. F. Chazotte 517.540
	Garment and gusset therefor, bifurcated, S. B. &	Soap server, toilet, H. B. Potter
	F. F. Lewis	Soot separator, M. A. Lutzper
	Garment supporter, W. Ogden 517,658	Speed varying mechanism, H. H. Cummings 517.443
	Garter adjuster and fastener, W. L. Braddock 517,678	Spindle step protector. E. Jagger
	Gas engine, Labataille & Graff	Spinning machinery spindle, Smith & Howson 517,772
DATE,	Gas from crude oil, making fuel, C. F. A. Convert. 517,681	Spooling machine stop mechanism. Lever &
`	Gate. See Elevator gate. End gate. Railway	Grundy 517.615
	crossing gate.	Spooling machines, automatic tension regulator
patents.]	Gazette holder, E. Adam	for, W. H. St. George 517,495
-	Generator. See Steam and gas generator.	Spring, See Burglar alarm spring. Watchcase
	Glass, apparatus for manufacturing plate, E. P.	spring.
517,648	King	Spring catch, A. Ludwig 517.703
517,626	Glass melting tank oven, F. Wrede 517,675	Sprinkler. See Lawn sprinkler.
on 517,628	Grader and amalgamator, J. A. Armbruster 517,721	Stalk cutter and rake, combined, J. Priestley 517,766
Age	Grading railways, etc., machine for, C. W. Arch., 517,559	Stamp attaching machine, postage, O. J. Moe 517,472
517,777	Grain meter, rotating, J. M. Finch 517,608	Stamp sticking device, C. A. Sprague
	Grain meter, rotating, E. K. Hayes 517,650	Stamps to envelopes, machine for attaching post-
517,767	Grate, automatic water circulating fire, Ferris &	age, C. Elliot 517,740
517,596	Wbeeler	Stapling and cutting machine, Parks & Mollart,
517,497	Grinding machine, D. H. Church 517.643	517,586, 517,587
517,754	Grooving machine, H. W. Morgan 517,705	Steam and gas generator and engine, combined,
517,493	Gun, can e, R. F. Cook 517,438	# N. Eaton 517,696
500-	Gun carriages, anchor for field, "toble & Brank-	Steam boller, J. E. Green 517,745
517,427	ston	Steam trap, F. M. Ashley 517,423
517.628	Gun aight. C. Rechia	Stone artificial A. Wallenhor