recently patented inventions. Pertaining to Apparel. SAFeTY-PIN.-W. Strayer, $\Delta x$ xtell, Kan.
This invention relates to certain improvements This invention relates to certain improvements
in safety pins adapted for general use but in safety pins adapted for general use but
more particularly adapted for use in securing more particularly adapted for use in securing
any suitable attachment to the person. It any suitable attachment to the person.
may be made in any convenient size or shape It cannot be opened by pres
become accidentally unfastened

## Electrical Devices.

electiric henter.-J. S. Reynolds, Santa Barbara, Cal. In the present patent the invention has reference to electric heaters, the
inventor's more particular object being to im prove the general construction of the heater manner for mounting the heating wire.
ELECTRIC CONTROLLER. - R. VAN $R$ Sill, Newark, N. J. The object of the inven-
tion is to provide a controller, more especially designed for use on electric street cars and other electric motor vehicles, and arranged $t$ insure long life to the contact members and t provide an exceedingly strong contact between
the said members for the proper transmission of electricity.
eLECTIRICAL CONTACT-Joint. - R. H. Wappler, New York, N. Y. Mr. Wappler's
more particular object is to produce a type of joint suitable for use in connection with
miniature lamps employed in surgery, dentistry watch-making, and various other professions and avocations in which it is necessary to manipulate the lamp by hand, or to secure it
upon the operator's head, as the case may be

## Of Interest to Farmers.

CORN-HARVESTER.-F. D. Wilson and $\Lambda$ D. Wilson, Ottumwa, Iowa. In operation the
harvester is driven up the row with one horse harvester is driven up the row with one horse being harvested, and the others on the outside
of the row being harvested, thus bringin of the in the row into position to be engaged
stalks
by conveyer chains. These pass the stalks by conveyer chains. These pass the stalks
backwardly toward the vertical rollers at the pass but not the corn thereon. Means provide for snapping off the ears and knocking them into a conveyer, stripped stalks passing be
tween the rollers. The latter yield for the passage of larger stalks or slight obstructions SEED-PLANTHR AND FERTILIZER-DIS TRIBUTER.-C. E. Littlefield, Jesup, Ga combined planter and distributer which can be used for continuous sowing, drilling, planting seed at desired distances apart, and whercby also two kinds of seed can be planted at the same time from the same machine at desired intervals apart.
STONE-PICKER.-G. L. Holliday and I. S. Hawks, Curtiss, Wis. This machine is adapted to remove stones from farm land as it is pulled
along, and load them into an auxiliary cart coupled to the rear of the machine, and it can be uncoupled when loaded and driven to with the labor entailed in such machines a before being carted away.

## Of General Interest

TONSILLOTOME.-E. E. Straw, Marshficld, Ore. The object of the inventor is to
provide cutting blades to remove any desired amount of tissue at a single cut, to provid means for adjusting the blades at any angle and also means for detaching one blade from the other
STAR-FINDER.-J. T. Rogers, New York N. Y., and W. H. Ridings, Milwaukee, Wis.
This finder is more especially designed for the This finder is more especially designed for th use of mariners and others, and arranged to
enable a person to tell at a glance which stars are most favorably located at a given time for making observations, without requiring tedious
calculations; to give the shortest formula fo working out longitude and latitude by the simultancous altitude of two different stars and to find the deviation of the compass by the bearing of stars, planets, or moon.
CLOSURE.-F. H. PALMER
ClOSURE.-F. H. Palmar, New York, N. Y The object of the improvement is to provide jars and other packages, and arranged to hermetically close and seal the package in means. Means enable the prying of the closure out of the bottle when desired.
AErial Vessel.-L. D. Merrick, New York, N. Y. One of the purposes of the in
vention is to combine in one vessel the aero plane and balloon systems in such manner that the two will co-operate and be under the complete control of the operator, and so that the
frame of the vessel may be made of exceed ingly light material, timber for example, and
yet be safe and strong and capable of all the necessary elasticity
COMBINED EASEL AND PLATE-HOLDER this case is to provide a device which object in quickly, conveniently and economically secure being supported by an easel, or which is to be
so construct the device that it may be readily adapted to
anchor-projectile.-E. Mingus, Marsh field, Ore. The projectile has in all respects the outward formation of the ordinary pro-
jectile, but with arms forming part of the periphery of the projectile, designed to fly outwar duc to the action of an attached line as the other matter in which it becomes embedded thereby forming an effective anchoring means.
THAWING-POINT.-J. H. LAMLEY, Ta-thawing-points, such as are used in place mining for gold. These points are used in
frozen earth to a great extent, and are prorozen earth to a great extent, and are pro
vided with means for conducting steam to the forward end or tip of the point, which effect
a thawing of the ground as the point is driven a thawing of the ground as the point is driven
in. The object is to produce a point having means for attaching the hose to the body. TABLE. -H. H. Levy, New York, N. Y ing table is particularly for use in manicur-
ing operations or for the use of chiropodists the object of the invention being to provide a table, on the side opposite to the operator, with a rocking rest for the arm or leg of a person being operated upon, thus not only re-
lieving the person from tiresome annoyance,
but making it more convenient for the but ma
operator
KODAK-FILM.-J. B. Ketchum, Joplin, Mo. The film is for use in a camera having
ground glass focusing plate across which the alm is passed. An opening is provided in the film or its web, which may be brought into
position over the ground glass; in this way position over the ground glass; in this way
one is enabled to focus an image on the round glass without removing the film from the edges of the focusing opening.
noN-refillable bottle.-I. I. Kremer, New York, N. Y. An improved plug is adapted whereby the latter is prevented from being
refilled. The plug is unremovable and its mechanism is so constructed that liquid may readily flow out of the bottle through the plug, but impossible for liquid to be forced into the
bottle. Insertion of wire or other tool is also bottle. In
impossible.
PORTABLE MOLD.-W. L. Hart, West Liberty, Ill. Especially that type of mold in which the side walls are removed when the
molded block becomes firm enough to stand, is mproved by the invention. The side walls of the mold may be removed by simply tipping
them to one side and without raising the
structure to a height above the molded material. The walls may then be employed upon second base plate or pallet.
LOOSE-LEAF INDEXED LEDGER.-J.
Gloe, Manning, Iowa. The invention is in the nature of a form of ledger known as loose
eaf ledgers, in which removable and inter changeable leaves are firmly held together in temporary mechanical binder. The object is make the ledger: self indexing and capable indefinite extension and to facilitate the reference to the var
much valuable time.
VEntilator.-J. F. Bowes, North $\Lambda$ dams, Mass. This ventilator is such as those ordinarily removably placed in window openings
of buildings, cars, etc., and which will autoof buidings, cars, etc., and which will auto-
matically operate to close and shut off a draft of air on blowing thercthrough. This is done by within the opening of the ventilator frame, these being slightly spaced apart and having
other openings, whercby as the shects are lown together, the ventilator is automatically closed, and when separated, is likewise opene

TUBE EXPANDING 1 ND BEADING TOOL -W. McCormick, Hillyard, Wash. Means pro Vide for expanding and beading the tubes of
ooilers into the tube sheet. One object of the invention is to provide means whereby the pin may be constructed of greater strength an the beading tool more centrally arranged to
eliminate the jarring effect when in operation. ing and beading tool described and claimed in a former U. S. patent granted to Mr. McCormick.
HAMMER.-S. S. Stuhag, New York, N. Y. hammer having means for holding the nail so as to start it in the wood without necessiwhen the first nlows are struck. It is es pecially useful in facilitating the application of nails in inaccessible places such as a corner.
WRENCI.-G. H. TatGe, Randolph, Neb. The object in this instance is to provide a
wrench more especially designce for screwing ap or unscrewing the nuts on the tecth of threshing machine cylinders. By using a wrench can be conveniently manipulated in inaccessible places in which only a partial until the position of the handle is changed in until the
the eye.

## Heating and Lighting.

OIL-RESERVOIR FOR LAMPS.-C. T. Whiprle, Glens Falls, N. Y. The invention is
especially adapted for use in connection with
lamps, oil stoves or the like, which are in-
tended to be removed from place to place, and tended to be removed from place to place, and
which are liable to be accidentally overwhich are liable to be accidentally over-
thrown. The device will not permit oil to thrown. The device will not permit oil to
flow or leak from the reservoir when the lamp Low or leak from the reservoir w
to which it is attached is overtu
preventing ignition or explosion.
gas-burner. - b. f. Jackson, Jersey City, N. J. In the present patent the inven City, N. J. In the present patent the inven-
tion has reference to gas burners, and the improvement has for its object the provision of means for thoroughly mixing gas and a mospheric air in the proper proportion
produce quick and complete combustion

## the gas. BASE

BASE FOR STOVES OR RANGES.-M. tion provides a base for sheet metal stove and ranges, arranged to increase the strength and durability of the body of the stove or
range, to dispense with separate and to render the manufacture of the stove or range very economical. It relates to range construction such as shown and described in the Letters Patent of
anted to Mr. Allen.

## Machines and Mechanical Devices.

flying-machine. - W. Phillips, Chi cago, IIl. In brief the invention embodies wings mounted on the car, novel means for communicating motion to and controlling the adjustment of the wings for effecting pro gressive movement in any dircction, a guiding
vane, and means for changing the position of vane, and means for changing the position of
the vane from the interior of the car. PIANO-PLAYER. - R. MORGAN, Ellsworth, Kan. Blowing into one of the perforations the upper portion of the yoke body is rocked and completing the circuit including the sound the the by the striker corse sponding to the magnet. When, however, suction is created in the perforations the yoke
rocks in opposite direction and elevates the opposite plate, playing another key. It is preferable to connect the strikers to the
switched plates in a way corresponding to the switched plates in a way corresponding to the
placing of the reeds in a mouth organ, so that one familiar with a mouth organ may operat the player.
ANIMAL-TRAP--J. M. Kellogg, Bozeman, Mont. The object of the present invention is to provide a trap more especially designed for
catching small animals, such as mice, rats, rabbits, etc., and successively in large num-
bers, each caught animal resetting the trap for the next animal. It relates to traps, such a shown and described in Letters Patent of the U. S., formerly granted to Mr. Kellogg. CREASING AND FOLDING MACHINE FOR COLLARS', CUFISS, AND THE LIKE.-II.
GIGrhardt, Hazelton, Pa. The invention has reference to apparatus employed in the manufacture of cuffs, collars and like wearing ap
parel, and the object is to provide a machine
arranged to crease a piece of fabric on all
sides, to form outer sewing flaps and to fold sides, to form outer sewing flaps a
the same over onto the fabric-body.
HANDHOLD-FORMING MACHINE.- $\Lambda$. J Colvin, C. G. Hockett, and J. W. Firzpat-
rick, Grants Pass, Ore. In this instance the invention relates to wood working machinery, improved hand hold forming machine more especially designed for cutting hand holes in boards employed for forming boxes and the like.
GEARING.-J. Schroeder, Davenport, Iowa This improvement relates to gearing especially stirrer arranged within a receptacle and may be applied to devices of various characters
but it is especially designed to be used in con nection with washing machines of the char
acter shown and described in Letters Patent acter shown and described in Le
formerly issued to Mr. Schroeder.
drilifing DeVice.-I. K. Moore and g. Cos chelo, Philadelphia, Pa. The principal device that it may be used to operate the drill in obscure and inconvenient places, and power. The invention has reference to a deice for carrying and driving drills.
Hydraulic elevator.-R. H. Beebe and I. R. Covcorf, St. Johns, Orc. The ob-
ject here is to provide an elevator arranged
to insure full utilization of the power applice y reducing the friction of the surrounding parts to minimum, and by causing the piston straight-line pull on the flexible connection employed for turning the hoisting drum, an to allow the latter to travel bodily on its shaft to
ing rope.
AIR-SIIIP.-W. Huli, Souris, Manitoba Canada. The patent covers features designed trollable Improvements comprise special ar trolable. Improvements comprise special ar pellers to be employed; a series of sheets of canvas or the like are mountcd on rollers so
as to be wound and unwound. Thesc to utilized as stecring sails and a certain adjustment of them gives the ship the nature of a parachute to retard downward movement. In When unwound and inflated they serve to in-
or to aid in sustaining the ship fioating in
vater. Wheels may be provided for moving land, and runners for ice
portable cotton compress or bILING MACHINE.-J. W. Phillips, sustin,
Texas. The object of the invention is to pro vide a simple, powerful and economic mechanism or device, by which the material to be pressed can be subjected to great pressure, ducted in a manner to most satisfactorily compress the material with uniformity. Its general principle can be applied to other and various kinds of presses.

## Railways and Their Accessories.

RAILROAD-SWitch.-J. M. Powell, Stock mprove uparpose of the for which Letters Patent werc formerly granted to Mr. Powell, to the extent that a short switch rail is employed between adjacent rail sections of the main line and sidings, pivotally mounted to constitute a bridge rail for the break occurring at such sections of
the track, and to provide switch points having the track, and to provide switch points havis
TRACK-SANDING DEVICE.- $\Lambda$. $\Lambda$. Churchm, Portand, Ore. Prific mens whe relates more particularly to specific means whereby the the track by the force of compressed air supplied from the brake system or other source One object is to provide means for controlling delivery of sand, that it may be manufactured special castings and delicate mechanism obviated.
RAIL-FASTENING.- . W. Avery, Cove, ith a rail and a clamp plate, of a bolt and a tie having a slot notched in its opposite
walls to receive corners of the bolt shank whereby to lock the bolt when applied to seure the clamp plate. The combination with the same, of a tie plate having a slot receivghe bolt and provided with an enlarged of the bolt head, the rounded side of said portion being sloped to facilitate the introduction of the head.

## Pertaining to Recreation.

ATTACHMFNT FOR BAIT-HOOKS, JIGGERS, $A N D$ LIKE 1 NG bject of the inventor is to provide an attachment arranged to prevent depredation of the dead bait, artificial bait or like bait by small fish, to allow convenient and safe use of
choicest bait, such as mussels, cockles and ther shell fish, as well as white fish, squids, erring pips and like entrails too soft to be strung on the hook; to prevent fouling of the
hook on the bottom of the fishing grounds, nd to securely hold bait in place for any ines to see if the hook is still baited or of

## Pertaining to vehicles

TIRE FOR VEHICLE-WIIEELS.--'T. F. Hamilton, Chicago, ill. The invention relates pecial object being to provide whes, a f a plurality of similar segments so connected and secured, that in case of injury to
one or more segments, said injured can b
ones.
Note.-Copies of any of these patents will e furnished by Munn \& Co. for ten cents each. the invention, and date of this paper.


## hints to correspondents.


 letter or in endeavor to reply to all either department, each must take
his turn
yers wishing to purchase any article not adver-
tised in our columns will be furnished with
addresses of bouses manufacturing or carrying
the same the same.
Special Writen Information on matters of personal
ratber than general interest cannot be expected


(16574) T. W. A. asks: 1. A railroad train going at a rate of over 60 miles per hour rounds a sharp curvc. Will the train if it
should leave the track be likely to fall outward, or does the raising of the outside rail fall inward? tendency and make it likely to fall inward? Grant the following: If the
track were level, the train would fall outward, now if the outside rail is raised, will it fall
curve at a high speed cannot under any sup- $\mid$ be pleased to hear from you. I do not want
posable conditions fall over in the inner side to go to the expense of a steam locomotive posable conditions fall over in the inner side
of the track. The elevation of the outer rail is made such as to overcome the tendency to overturn to the outward side of the track, and
the train goes round the curve as if on a level,
when it moves at the speed for which the ele when it moves at the speed for calculated. If the velocity of the train very much exceeds th vated for whin would leave the track on the outer side of the curve. The tracks for bicycle racing are made very steep at the turns in order to enable riders to go round the turn
at full speed, and when rounding a turn the rider feels in equilibrium while leaning far in toward the center. To him he is as if rid-
ing on a level. The centrifugal force is neutral zed by the elevation of the track or rail.
(10575) A. H. S. asks: How much (10575) A. H. S. asks. How hach more sunshine is there at the equator than a the longest days-at the equator or the North Pole? We have a great argument over this
question. A school teacher and others contend guestion. $\Lambda$ school teacher and others contend that the sun shone longer at the North Pole
than at the equator, and $I$ thought it absurd, than at the equator, and 1 thought it absura so we decided to leave it to your good judg ment. $A$. At the equator the six and sets at six the entire ycar. All days are twelve Disregarding the effects of refraction and cloudy weather, the sun is above the horizon at any place on the equator and shines just half of the year. This half-year of sunshine is divided int equal parts of twelve hours each. At eithe
pole the sun is above the horizon for six months and below it for six months of the year There is but one day of six months' duration and one night of the same length in a year.
You will see from this that there is the same duration sunshine the the duration of sunshine at the poles as at the
equator. The same is true for any place on the earth. Add the length of sunshine fore on he days in a year in our latitude and the sun will be just a half year. The longest day is the pole, and it is six months long.
(10576) G. T. asks: How to remove gases of combustion and room. Passing the air through a liguid would not be objectionable. $A$. To purify air through cotton; the moisture and ammonia and germs, by passing through sulphuric acid ; the sulphur, by passing through a solution of lead acetate. Pass now through calcium chloride or soda lime to remove last traces of moisture, etc. Only pure oxygen, nitrogen, and argon remain.
(10577) F. C. F. asks: 1. What is the best method to produce lantern slides in which
the high lights will be clear glass and the shadows dense enough for the lime light? I print y contact, and have used for developing hydroguinone, metol-hydroguinone, and pyro, and an acid fixing bath, yet there always is a
slight veil over the high lights. A. The only mode in which lantern slides can be produced with no development in the sky and high lights is to have a negative which is opague in the
high lights. 2. Can you give a simple method by which an amateur could color lantern slide transparencies? A. To color slides requires artistic sense and knowledge of the mixing and applying of color. We think that is all that is equired. Much assistance can be had from
the chapter on coloring slides in Hopkins's "Experimental Science." This book also gives instructions for making slides as well as camexperimenting. is. Why is it that water when fiowing through a funnel or into a small outlet always whirls, producing a depression or an
opening over the outlet? Why is the whirling bly something in the shape of the outlet of funnel or wash basin which determines the course of the liguid as it runs out. A loss of equilibrium is soon seen, and the water whirls. Centrifugal force is produced, caused by the opening into the pipe below. We would try to
explain why the whirling is always counter clockwise if it were so. We have just tried a wash basin, and found the motion always the hand it could be made in either direction Probably some inequality in the orifice deter mines the matter.
(10578) A. B. S. writes: As a long eader and subscriber of your publications desire to ask if there is any secret in the
preparation of fluoroscopic screens for X radiance, or if the high price is due to the (or tungstate of calcium). Where can they be procured? A. There is no secret in making a fluorescent screen for X-ray work. Skill only is reguired to distribute the crystals with
perfect evenness and to attach them to the perfect evenness and to attach them to the crystals must also be of uniform size, sifted through a sieve of rather a fine mesh. We
should buy rather than try to make one. The cost is in the material used. It is advised cost is in the material used. In wat onill be sat cent for quite time after it is excited. It is cheaper but poorer, and is little used now. (10579) J. B. S. says: I want to excavate earth and move the same to make a fill of about 60,000 cubic yards. If you know
of any machinery that will do this, I would
to go to the expense of a steam locomotiv
excavator. $\Lambda$. The only suggestions that we have to offer you for excavating earth are a
steam shovel or to use hydraulic means in case team shovel or to use hydraulic means in ca there is
vicinity.
(10580) T. C. G. says: Can you give (10580) T. C. G. says: Can you give
ne reliable rules for finding the sets of ellipti cal and spiral car springs? Also the length iven free height? Do you know where I could buy a book dealing with car springs? A. The uestion of calculating elliptical and spiral car prings to give definite results is an exceed ingly complicated one, and one that requires onsiderable experience as well as theoretical knowledge. You will find guite a complete discussion of the theoretical side of this subject in the last edition of Lanza's " $\Lambda$ pplied Me chanics," with
$\$ 7.50$ by mail.
(10581) A. E. K. says: The owners of one of the mills in this vicinity are having great deal of trouble with foaming of the water in the boilers, and have made a trial ested to cested to remedy this. $\Lambda$ sample of the water was sent to the University of Minnesota for ceived in reply. If you can suggest anything would be of service the favor will possible for you to avoid trouble from foaming with water containing as much organic matter as the analysis which you inclose shows. If it is possible, we would advise another source supply, even though the expense of procur ing it is considerable. If this is impossible,
the only practical suggestions which we have the only practical suggestions which we have
to offer are: 1. Blow off your boiler very freto offer are: 1. Blow off your boiler very fre-
guently and very generously, so as to prevent the impurities becon, if your boiler capacity so as to be able to gener ate the steam that you reguire at a low rate of evaporation. 3. In case you have a sufficient supply of water, we would strongly advise you to introduce surface condensers rs to make good the leakages. 4. In ca there is not sufficient water supply to enable you to use surface condensers in the ordinary
method, we would advise your building a shallow evaporation tank to cool the condensing water, so that you may use the same conden ing water over and over again in your con to make good the evaporation. Either of the suggestions contained in No. 3 or No. 4 will give a satisfactory solution of your problem, ut we doubt if anything else will.
(10582) M. F. F. asks: 1. State what effect oil or greases in a boiler may have upon the boiler itself. A. In answer to your first inguiry, we would say that greases in a boiler
are almost always injurious, . as they cause foaming and are apt to decompose, forming acids which affect the plates of the boiler in juriously. $\Lambda$ small amount of pure mineral ail like kerosene will sometimes tend to loosen ficial, but grease should not be used for this purpose. 2. Where low-pressure engines a ased, state what vacuum is maintained pressure engines refer to marine practice. T vacuum maintaince here varies with the design of the engines and the condensers from 24
to 25 inches of mercury to 27 or 28 inches. . What is meant by this amount of vacuum The amount of vacuum is usually expressed fect, it would be equal to the full atmospheric pressure, which varies with the weather, bu ury, or 14.7 pounds per square inch $A$ con densing engine can never have a perfect vacuum because it cannot cool the exhaust steam far enough. The lower the temperature to which it does bring the exhaust steam, the more per (10583) T. N. K. says: Will you kindly give me horse-power of a fore-and-a
compound engine 8 and $17 \times 12,200$ pound boiler pressure, 300 revolutions per minute, 25
inches vacuum? information in your letter to make it possible for us to exactly calcuate the horse-power of
8 and $17 \times 12$ tandem compound engine which ou mention. The power varies with the point of cut-off in the two cylinders, the
amount of compression and the throttling of the steam during the admission and exhaust. power does not probably vary very much from 250 horse-power when running at 300 revolu-
tions per minute with a boiler pressure of 200 tions per minute with a boiler pressure of 200
We would re guire indicator cards from both cylinders to
give information necessary to figure exact horsegive info
power.
(10584) F. A. T. asks: Is there any ain in pewer by using an Archimedes screw
eyond the power required to work an ordiary pump? A. There is no gain in power by using an Archimedes screw over the power reguired for an ordinary pump. Its efficiency so low that it is not used in practice, and we therefore cannot tell you where you can
see one. The principle of its action is just the same as that of the screw conveyors used to

## NEW BOOKS, ETC

Le Carbone et Son Industrie. By Jean 1906. Paper; 751 pages; 129 illus trations. Price, \$7.50.
M. Jean Escard in his new work has taken for his end as complete and wide a description as possible of the recent applications of the different forms of carbon, putting stress on those which have a particular interest or an
especial industrial application. After a genespecial industrial application. After a gen-
eral dissertation on the properties of carbon eral dissertation on the properties of carbon
so as to familiarize the reader with the modiand also to avoid repetitions in the following chapters, the author commences with a stud of the diamond and its applications. Graphite which is worthy of next being discussed, i dealt with at length. The author does not fear to lay great weight on the physical and chemical characteristics of a number of the many varieties of this substance, and to describe
with care the principal localities in which this mineral is found. In the next chapter, the reader can gain some idea of the interest that
is shown in investigating the properties amorphous carbon, each variety having specia applications of its own. The last two chap ters, given over to bituminous coal, are par view of this mine author gives not onl but a description of the localities in which it is found in France as well as in Europe and
in the other parts of the world, and he has endeavored to interest the reader by adding some new considerations on the exhaustion of coal mines, and on the fuels of the future. M. Escard in many places evolves his own of carbon parallel to those which other a thors have already set forth. The many re searches that he has carried on in the mines as well as his particular studies of locations will give to the reader confidence in his as
sertions. It is certain that this work, th irst that has appeared on the guestion of the ndustrial uses of carbon, will receive a grea Les Forces Hydrauliques et les Applica tions Electriques au Pérou. Pa
Em. Guarini, Professeur à l'Ecol d'Arts et Métiers de Lima. Paris: H. Dunod et E. Pinat. 8vo., 24 pages, 12 illustrations. Price, $\$ 3$.
M. Em. Guarini, in this pamphlet, tells of his journey in the south of Peru, to Mollendo, Tambo, , requipa, and Lake Titicaca. He gives
special consideration to the hydraulic possibilities of this region, and to their utilization as sources of electricity. Numerous drawings, allow one to gain an idea of the great resources of Peru, and of the means of utilizing them economically. The possibility of making us of Lake Titicaca is the most important part
of this interesting work. Technische Anwendungen der Physika Berlin: Mayer \& Müller, 1907. 12mo Berlin:
pp. 304.
The author has written this book primarily o meet the requirements of engineers, proprie-
ors of industrial works, teachers, and students. The explanations are clear and do not demand much preliminary knowledge. The author has ing than upon theoretical abstract discussions to drive his truths home. The chapters in clude excellent summaries of the Fixation of
$\Delta$ tmospheric Nitrogen; Gas Making; Contact Mtmospheric Nitrogen; Gas Making; Contact Process of the Manufacture of Sulphuric Acid;
Production of $\Lambda$ mmonia and Ozone; Reaction Production of $\Lambda$ mmonia and Ozone; Reaction
Accelerators; Vaporization and Condensation Solutions of Alloys; Colloid Solutions; Disso ciation Pressures; and Measurements of High Temperatures.
Die Betriebssicherheit der Eisenbahnen Sonderabdruck aus dem "Archiv fuer Eisenbahnwesen." Von C. Guillery
kïniglicher Baurat. Verlag von Ju kioniglicher Baurat. Verlag von Ju
lius Springer in Berlin N. pp. $645-659$
INDEX OF INVENTIONS
For which Letters Patent of the
United States were Issued
for the Week Ending
June $18,1907$.











