own title to be respected. This is what the King fully realizes, and he has taken on himself the task of show ing his subjects by his personal example the road they have to follow.-St. Paul's.

The Recent Floods in Eastern Germany and in
The American papers have taken little notice of the dreadful floods that have produced such destruction in Germany and Austria. The region stretching from east to west between Silesia and the kingdom of Saxony was, in the closing days of July, the scene of dreadful catastrophes, the ultimate cause of which were heavy rainfalls. These reached their climax on the 29th and 30th of the month and affected primarily the mountainous districts, flooding the northern slopes of the Erzgebirge and the mountains of Saxony and Bohemia. But the swollen rivers soon poured their overflow broadcast over the prosperous valleys, and the waters of the Elbe and
Mulde reached in quick succession the towns of Bitterfeld, Dessau, Wittenberg and Magdeburg, within the first week of August. At the same time the Neisse and the Bober were working harm in Silesia. Not till August 5 did the Danube endanger the Hungarian lowlands from Presburg downward.
The awful extent of the disaster may be imagined from the figures obtained by the Meteorological Institute of Chemnitz, Saxony, as representing the total rainfall on the two days above mentioned for the kingdom of Saxony alone. Over $160,000,000$ cubic yards of water were recorded. The losses were alarmingly great. In Silesia the total damage suffered was estim ated at $\$ 5,000,000$. In Saxony, not taking into account the destruction of all harvest products, we must take the damage sustained to represent at least $\$ 17,000,000$. At Hainsberg, near Dresden, where the two Weisseritz rivers unite, the floods tore down the railway embankments, damaged some factories, destroying 90 tons of merchandise, swept away several storehouses, and devastated the fields. One arm of the river branched out and sent a tearing torrent through the principa street of the city, whereby houses were undermined and building after building was razed to the ground the street being soon left one string of desolate ruins.
Some houses have disappeared altogether, leaving no Some houses have disappeared altogether, leaving no
trace on their former sites. The flood swept away trace on their former sites. The flood swept away
people, cattle and animals of all sorts, houses, furniture, altogether, in one current. The water got into the mines in the neighborhood, playing serious havoc with them. The ground was so rent by the water that it finally gave way, and a large factory was almost entirely demolished, the water rushing down the pit, carrying with it many people. Private houses and shops
often buried human beings under their ruins, in one case ten persons at one time. Thirty houses were de stroyed in Hainsberg, thousands of animals were lost and many families reduced to beggary.
The valley of the Mulde was more fortunate, and the losses are mostly of property. The crops are swept away, only
In the Riesengebirge the floods were rendered all the more dreadful by the fact that most people were sur prised by them in the night, and very few were able to save more than their lives. Trees and roofs were full of people clamoring for help. Others, who would or could not part from their possessions, were drowned. Many houses have disappeared, leaving no trace of their po Schreiberhau. Fifteen houses and many barns, etc. were utterly destroyed. The calamity was further in creased by the gas lamps giving out, leaving the strug creased by the gas lamps giving out, leaving the strug
gling men and women in the dark night. Of one street gling men and women in the dark night.
scarcely anything is left, and another has lost some 330 scarce
feet.
South of the Schneekoppe (the highest mountain of the Riesengebirge), the little brook Aupa, ordinarily very harmless, swelled to a powerful torrent and inundated the city of Trautenau. Floods had been wit nessed there in 1858 and 1882, but they did not approach this year's in extent. The firemen of the locality took up the rescuing work, and in one case assisted a physician, Dr. Maly, in saving 32 people from certain death. On one occasion, a child floating about in its cradle was saved. Fourteen bodies were picked up which were so mangled that they could not beiden tified.
In Marschendorf twenty-eight houses were utterly destroyed and thirty more very badly damaged.
Vienna, too, was partly flooded, but here, thanks to the excellent provisions against such emergencies, no serious harm was done.
In a number of other places the floods worked great harm, taking many lives and devouring millions of property; the fields having been made unfit for cultivation for several years to come. Great poverty will necessarily come to many people in a land where money is scarce at all times. Collections were, of course set on foot by raany persons to alleviate the evil, and the governments, too, are inquiring into the matter, with a view of ascertaining the extent of the damage done and the aid that can be given.

The records of the United States Patent Office show that up ward of 6,500 foriu
patented in this country.

## Restrictions in Use of wood for Interior

 Fittings or ShipsAs the result of the experiences drawn from the battle of the Yalu, the use of wood has been much restricted in the new German ships, according to Herr A. Dietrich, Constructor in Chief of the Imperial Navy, says the Proceedings of the United States Nava Institute.

In the outfit and construction of the new German hips wood is used only for a few minor points. Wood en deck planks are no longer laid; steel deck plating is covered with linoleum, sometimes over a layer of cork. In the crews' quarters the sides of the ships are not ceiled. In the officers' rooms the ceiling is made f steel plates $13 / 2$ millimeters thick and lined with cork. For cabin bulkheads the steel is 'covered with thin woolen cloth, and with cork lining underneath where it is desirable to exclude sound or lower the temperature. Where heat is radiated from engine or funnel casings, cork lining is resorted to. All wood is removed from the ammunition rooms, save wood is removed from the ammunition rooms, save
the racks for shells and powder charges, which are the racks for shells and powder charges, which ar
till made of wood. For all ladders and steps steel is still made of wood. For all ladders and steps steel is
used. The handrails on the conning bridges are no used. The handrails on the conning bridges are no
onger of wood, but of some other material which wil not burn or splinter, and which is more agreeable to the touch of the hand than steel or brass. Chart houses and captains' rooms on bridges are entirely made of steel and fitted out with non-combustible materials. Since all such changes will be a little exag gerated, it seemed to be advisable to abandon wood for the interior fittings, and especially for the furni ture, and to resort to fireproof material which wil not splinter. Many things were tried. Furniture was made of steel and aluminum, lined with cork and covered with linoleum or canvas: but it was not equal to wood furniture. Only the bedsteads are constructed of iron, steel or brass. The insignificant quantity of wood in the few pieces of furniture when ignited is not a dangerous source of smoke, but rather it is the utfit of the staterooms, the mattresses, blanket lothing, books, etc. However, for the present wets cannot be abandoned entirely. Top signal masts, lag poles, etc., will be made of steel, but there one cannot save weight. The fighting capacity of the ships is without doubt increased through these in novations, since the ship is less apt to burn, the effects of splinters are restricted, and considerabl weight is saved, which is available for ordnance and armor."
It may also be mentioned that in German ships war the protective under-water deck is never cut

## RECENTLY PATENTED INVENTIONS. Engineering

STOP M OTION FOR GOVERNORS. George F. Boos, St. Mary's, Ohio. In centrifugal governors for engines and other machines, the stop motion,
according to this nuvention, is arranged to at once shut off according to this invention, is arranged to at once shut off the motive agent in case the governor driving belt slips
off, breaks, or becomes unserviceable. A cam mounted off, breaks, or becomes unserviceable. A cam mounted
to turn is controlled by an arm carrying an idjer pulley oo turn is controlled by an arm carrying an idler pulley ment at one side of its fulcrum with the cam has connec. tion with the valve stem at the other side of the fulcrum. In case of accident the downward swinging of the arm is very sudden, causing an immediate closing of the valve.

## Hailway Appliances.

Car Fender. - John Landau, Jr. Brooklyn, N Y. To prevent people being run over or injured by street cars this inventor has devised a fender which is sufficiently yielding, when one is caught by it and received into its basket, to prevent rebound of the
body, or its being thrown out, before the car is brought o a standstill. The improvement comprises a spring. pressed lever frame fulcrumed on brackets attached to the sides of the car platform, the car having such brackets at cach end, and removably hung on this frame is a baske frame, which may be conveniently moved from one
end of the car to the other, only one basket being used.

Switch Operating Mechanism. Charles E. Harris, Ellwood City, Pa. A switch controlling apparatus which may be operated from the car is provided
by this invention, which comprises essentially a toggle by this invention, which comprises essentially a toggle
joint mechanism connected to the cross bar which throws the movable portions of the track, the operating mechan ism consisting of crank shafts extending across the track and operated upon by pivoted levers which extend
lengthwise of therails, the leverbeing depressed by wheels lengthwise of the rails, the lever.being depressed by wheels that they may be shifted laterally to engage the prope lever or to clear all the levers.

## Electrical.

Trolley.-Frank W. Canalese, Portland, Me , The grooved wheel which takes the current from the trolley wire, according to this invention, is ar-
ranged to turn in a plane at right angles to the plane of rotation of the wheel, to accommodate itself to the wire when the trend of the latter is different from that of the railroad track. Combined with a trolley pole and sup-
porting frame having an annular top plate is a cap turning on the top plate and carrying standards in which the trolley wheel is mounted, double acting springs holding the wheel normally in a central position relative to the pole, while a fork pivoted to the pol
ceive the pivot of the trolley wheel.

## Bicycles, Etc.

Rear Adjusting Fork. - John J. Naregaug, Leesport, Pa. Instead of the ordinary coup-
ling at the rear apex of the diamond shaped trussed frame, whereby the rear axle is inserted or removed in an open slot, and may be adjusted to tighten or loosen he chain by means of a set screw, this improveremoval of the axle and its readjustment, without oreaking or opening the chain, is roore conveniently effected. The axial pin, having a screw-threaded end, is arranged in a slotted frame plate, and a screw-threaded cone bearing
fits on the axial pin, on the end of which is a clamping fits on the axial pin, on the end of which is a clamping
nut, while an adjusting screw having a forked end loosey embraces the axial pin.
Bicycle Sa ddle.-Charles H. Young. New Ycrk City. This invention covers a novel construc
tion of the spring frame of the saddle, designed to retain the saddle in its normal form, and the shape of the sad de is designed to conform to the parts which contact with it in such a way as to cause the surfaces which should naturally bear the weight of a rider to be sup-
ported, while other parts liable to injury are relieved ported, while other parts liable to injurg are relieved
from pressure, the saddle having the form required by from pressure, the saddle having the form required by
nature for easy and safe riding.
Bicycle Rest.-Eugene (Jhurch, Tacoma, Washington. 'This is a device to facilitate cleaning a bicycle, holding it upturned and reversed, in such
way that every part may by readily reached, or the frame way that every part may by readily reached, or the frame or parts of the machine may be convenient
has four legs. which fold closely together to take up but little room when not in use, and a head block in which is a rest to engage the frame of the bicycle just above the
crank hanger, two of the legs being then attached to the hancile bars by cords, while the two other legs are similarly secured to the center brace at each side of the saddle, the necessary cords being permanently attached to the
legs.
Tire --Jacob A. Lewis and William G. Spiegel, New York City. This is a pneumatic tire pendently inflaed, means being provided for holding pendently infa ed, means being provided for holding in engagement with each other. The preferred manner of joining the sections together is by means of a stud
at one end fitting into a corresponding depression in the at one end fitting into a corresponding depression in the
end of an abutting section, and it is also designed end of an abutting section, and it is also designed
that the tread surface shall be slightly stepped, one section projecting slightly beyond the abu:ting end of

Speed Indicator and Cyclometer - Willis H. Ostrander, Boston, Mass. This combinatinn device for indicating the speed and at the combinatinn istering the distance covered is applicable not only to a bicycle, but may be used on a wagon, a steam engine. or to throw an indicator hagd aperating governor adapted to throw an indicator hand a distance over the dial cor-
responding to the speed of travel. Ite casing is divided
by a horizontal partition into a lower and upper chamber, the upper wall of the latter having a dial graduated through which figures on distance-indicating wheels may be seen.

## Mechanical.

Wrench.-Harry S. Nobleand Charley M. Tussing, St. Mary's, O. This is a tool having a fixed and a sliding jaw, and means for holding the latter
at any adjustment within its range of movement. The shank of the tool has a series of broken threads, at one side of which runs a longitudinal rib, while a thimble revolubly connnected with the sliding jaw turns on the
shank, the thimble having broken internal threads co. shank, the thimble having broken internal threads co-
acting with the threads on the skank, the threads of the acting with the threads on the shank, the threads of the
thimble being capable of moving through the space be-
tween the ends of the threads on the shank when not engaging such threads.
Stock and Die.-George G. Doyle, Ogden, Utah. This is a tool more especially designed for the use of plumbers and other mechanics, and is ar
ranged to permit of using different sized dies on the same stock, and having the dies of each set always set to cut the threads accurately, and so that no iron chips can get under the dies, so that they will not track or follow each other. The centrally apertured die plate adapted for at-
tachment to the stock has slideways ranging toward the center of the plate at the aperture, the dies being mounted to move on the slideways, while adjusting devices car ried by the plateengagethe dies.
Mechanical Movement. - Sidney M., James T., and John A. Polson, Laclede, Mo. These inventors provide a simple mecha hism designed for use
in well drilling and other machinery, pernitting a long drop of the working tool and requiring but a compara tively small amount of power for again lifting the tool. At one side of the center of the face of a continuously rotating crankhead is pivoted a rope-carrying arnl, and a
stop is fixed to the crankhead face at or near the opposite side, the stop being adapted to engage the free end of the arm once in each revolution and carry it around until it passes over its pivotal center and drops forward, pro ducing an alternate lift and drop motion while the crankh
tion.

## Agricultural.

## Greenhouse. - Willian H. Witte,

 Baltimore. Md. To enalle the valuable space of the walks to be utilize 1 for benches carrying plants, etc., the greenhonse, according to this invention, is provided withrails extending transverfely of the greenhouse walk, and a wheeled framework carrying a bench is adapted to travel on the rails, means being provided for raising and lowering the bench on the framework. Two stationary benches are also held at different heights, there being a
walk between them, while a frame is capable of moving
transversely out from beneath the higher stationary bench to occupy the walk.

## Miscellaneous.

Type Setting and Line Casting Machine.-Charles J. Botz, Sedalia, Mo. Pivuted type bars, each carrying at one end a matrix, according readily arranged, in any desired succession, and then clamped in form for the matrices to produce a line, when a pivoted casting box is swung over to engage
grooves at each side of the matrices, and the metal may grooves at each side of the matrices, and the metal may
be poured to cast a line. A novel form of distributer is also provided for returning the type bars to their original position, the entire apparatus being carried by a light

Range Gas Generator. - Miguel Velez, New York City. A gas plant especially adapted for generating wood gas has been devised by this in-
ventor. and one which may also be used as a range in public and private buildings, the gas being generated from wood or other vegetable substance. In the range is a retort connected with a gasometer, a gas outlet pipe
being connected to a movahle dome, and a purifier and being connected to a movable dome, and a purifier and
washing device being connected with the retort. The apparatus connected with an ordinary range is designed to feed from twents to twenty five burners, the gas being burned with a mantle and thus giving an incandescent light.
Street Sweeper.-Alvin Brown, Aurora, Ill. This sweeper as it moves along sweeps the from and refuse in its path up into a casing or receptacle
from it may be automatically dumped as required. Its rear wheels have rubber tires, that it may run noiselessly, and they serve as arivers for the brush drum ar-
ranged transversely within the enlarged rear portion of the casing, there heing a gear and lever mechanism for throwing the wheels into and out of connection with the brush drum slaft. A series of narrow brush belis, ar ranged side by side, is employed in preference to a single broad belt, facilitating repair and substitution when

Weighing and Dumping Vehicle. George II. Fletcher, New York City. To provide a wagon or cart with means by which the purchaser of a commodity, such as coal, may, if desired, ascertan the
correct weight of the quantity delivered, or whereby it may be weigherd by the seller as it is placed in the vehifor weighing the load by a scale beam and weight or by a platform or spring scale, according to the desired construction, and simple means are provided by which the body may be raised and inclined to duns p the load, either laterally or at the rear.
Dumping Box or Bucket.- Michael W. Peterson, Elliott, III. This improvement is especially
designed to facilitate handling ear corn or grain in cribs,
warehouses or granaries, but may be used for handling
hinged bottom and anties. l , wile the bail has projecting steering arm which may be adjusted to and secured in any desired position, a tripping rope serving
Tobacco Stemming Machine.-Milton C. Baughan, Richmond, Va. This invention pro-
vides a mechanism whereby the spread leaf is folded and carried forward, turned at right angles to bring it into alignment with the belte of infeeding devices, and is then stemmed in a manner closely resembling the way
the work is done by hand, the tobacco being handled from the point or tip end of the leaf. The stem is effectually removed, whether it be intact and unbroken places.
M sical Instrument Pedal.-Frank H. Dernell and Phillip H. Brehmer, Rutland, Vt. Thi which may be disconnected in a ready and convenient manner and folded up to occupy but little space the at tachment being so made as not to detract in the leas from the appearance of the instrument and enabling an home.

Attachment for Stringed Instre ments.-Justus L. Kelman, Maroa, Ill. For guitars, mandolins, banjos, etc., this inventor has devised an at
tachment to permit the performer to conveniently pres a number of strings and readily sound the chord when the corresponding stringe are picked. Arranged in a set of strings into chord position, bars actuating th pressers and keys actuating the bars, sets of levers gaging the bars heing actuated from the keys, and eac
lever being provided with adjustable blocks for engage ment with the cor
Clasp.-Jennie Walker, Brooklyn, N Y. This is a device more especially designed for use
with shoestrings, laces, etc, the clasp holding the bow of the lace at one or more points so that it will not becom untied. It comprises a body on which are fastening de vices, a cover entirely embracing the body, and the edges
of the cover, together with the bottom of the body, being arranged for contact with the surface to which the clasp is applied. The clasp is smooth upon all sides having neither end nor side projections or roughnesses of any kind to catch in the clothing.
Sash Lock.-Richard A. Haegelin. St. Joseph, Mo. This is a strong and simple device for position. supporting it equally at both sides and prevent ing rattling. It consists principally of bolts adapted to engage with their free ends the window frame, toggle levers connected with the bolts, and a device for opening to carry their free ends out of or into engagement with the window frame.

Stove.-Chauncey T. Andreas, Bay field, Wis. This is an improvement in stoves having air ber, there being two series of vertical air flues arrange opposite each other within the casing, a rear vertica outlet flue having two lateral openings at the bottom, entral opening at the top, and a central air inlet at the ront, which extend
Cooker.-Aunis B. Eighmy, Clifton springs, N. Y. A main chamber and a water chambe n this cooker are separated by a vertical partition, th hot air chamber. The main chamber has a diaphram o support vessels, a rertical air tube extending above he diaphragm, and a second diaphragm being place above the air tube, with other novel features, the croke being provided with compartments and receptacle which may be used for boiling, baking, steaming, an
any process ordinarily followed in cooking.
Water Closet Flushing. etc.-Wi liam A. Eberhart, Asbury Park, N. J. The apparatu provided by this invention comprises a tank having apcharge pipe to the upper end of which is secured fow bet the pipe and cap, while a verticalls novable inverted cup has guided movement on the cap the apparatus being designed to secure the positive dis charge of the full quantity of water it is intended to upply at each flush
Applying Remedies.-Paul J. Fouuier, San Francisco, Cal. This invention comprses simple appliance for holding lozenges, pastils, med cines, antiseptics, etc., in the mouth in such manner hat they may be retained there for a considerable leng rente or inhed. Note.- Copies of any of the above patente will be urnd name of the patentee title of invention, Mease send name of
of this paper.

## NEW BOORS, ETC

Valves and Valve Gearing. A pracneers. draughtsmen and students. By Charles Hurst. With numerous Ilustrations and four folding plates. London: Charles Griffin \& Company,
Liwited.
Philadelphia: J. B. LipLiwited. Philadelphia: J. B. Lip Pincott
The author bas succeeded in his expressed intention to eal with the subject of valve gearing in a simple and nteresting manner. Without any unnecessary preambe, he commences with a clear explanation of simple valve gear and gives formule for finding the area of ports, the lead, cutoff, percentage of release and com-
pression, etc. Chapter I deals with slide expansion gears, and then follow two chapters on link motions and other revering gears. This concludes Part No. I. The
second part is devoted to Corlise valves, and the four chapters deal successively with gears without trip motion; single eccentric gears with trip motions; double
gears, with large range of trip. The work is free from tions of thate theoretical discussions, and the explanaoy dister various types of vave gear are accompanied diagrams and sectional views of the parts whic sited to the needs of the practical mechanic.

##  Edward Arnold. 1897. Pp. 378 . Price $\$ 2.50$.

Nbia

This is an excellent work on the calculus for mechanica endectrical engineering students, and includes what has insbury Technical College. the regular course inte by easy work from other authors, The chapters are de voted to the study of xn ; compound interest law, the harmonic fanction and general differentiation and inte
gration. Another book on the calculus has heen needed for some little time, and the present work fills a loug fel

Billder fran Sverige. Utgifna a Avenska Turistföreningen. Views of Sweden, published by the Swedish
Touring Club. Leipzig: R. F. Koeh Touring Club
This is a pamphlet filled with exquisite half tone illustra tions of the scenery of Sweden, both in town and couny. It is little wonder that Sweden is considered one o has to offer. The Swedish Touring Club is to be con gratulated in the production of this handsome book.

## SCIENTIFIC AMERICAN

 BUILDING EDITIONSEPTEMBER, 1897.-(No. 143. ) TABLE OF CONTENTS.
No. 1. Plate in colors, also another perspective elevation and floor plans of a residence at Bensonhurs L. L, recently erected for Mr. Walter Jones.
design treated in an attractive style of archi design treated in an attractive style of archi tecture, with Colonal feeling and classic d
Architect and builder, Mr. Walter Jones.
No. 2. A Colonial residence at Springfield, Mass., $r$ cently completed for Mr. N. N. Fowler, at a
cost of $\$ 13,000$ complete. Two perspective elevations and floor plans. Mr. Guy Kirkham, architect, Springfield, Mass.
No. 3. Residence at Scranton, Pa., recently erected for Mr. Thomas R. Brooks. A unique desig Two perspective elevations and floor plans,
Mr. John A. Duckworth, architect, Scranton, $\stackrel{\mathrm{Mr}}{\mathrm{Pa}}$
No. 4. Elm Park Methodist Episcopal church and par sonage at Scranton, Pa. Two perspective ele ations and floor plans, also two perspectiv levations of the parsonage, with floor plan Architects, Mes
New York City.
No. 5. English dwelling at Overbrook, Pa., recently rected for Mr. Smucker. An attractive desig reated in the English style, half timber and
tone. Perspective elevation and floor plan also interior view. Architect, Mr. William L Price, Pbilad. lpha,
Plage at B.ngaamion, N. or Mr. G. N. North, at a cost of $\$ 3,200$. Tw perspective elevations and foor plans. A de-
sign with many excellent features, good elevations and well arranged plans. Mr. Elfred Bartoo architect, Binghamton, N. Y. for the Rev. Edward Mitchell, at a cost $\$ 2,500$ complete. Two perspective elevations cottage. Mr. George F. Morse, architect Nyack, N. Y. Nodern suburban vilia at Chestnut Hill, Mase, ord. A Mesers. Merriam, Isbenbeck a AL merican style with Colonial detail. Two per pective elevations and foor plans. Arctitect Mr. J. H. Morse, Boston, Mase
n, N. Y., recently rected for Miss Q. M. French. Perspective ele sign with excellent elevations.
No. 10. An actress' home at Chevy Chase, Md., illustrating the residence of Miss Annee Lewis. Two perspective elevations and floor plans. Mr Louis D. Meline, architect, Chevy Chase, Md. No. 11. Half page design of the New Rathsapotheke
No. 12. Pulpit of the Cathedral of Sainte Gudule, Brus.
No. 13. Miscellaneous Contents: New York as a furn ture market-Advantages of fresh air in apa ments. - Exterior plaster for dwellings.-Rules or mang good ; Ar.- reais tion of new homes; a test for relative humidity ents-Does gour faucet leak?-A new record ing thermometer, illustrated.- Beautiful work in wood finishing.-Slate roofs.-Dec-core-o, ratea.-Berkfela filter, illustrated.
The Scientific American Building Edition is issued
monthly. $\$ 2.50$ a year. Single copies, 25 centa. Thirty wo large quato pages, foruing a lage and splend Magazine of arcititecture, richly adorned with elegant plates and fine engravings, illustrating the most tion and allied subjects. All who contemplate building, or improving homes or structures of any kind, have in this bandsome work an almost endless series of the latest and best examples from which to make selections, thus saving time and money.
The Fullness, Richness, Cheapness and Convenience of this work have won for it the Largert Cibculation
of any Architectural Publication in the world. Sold by all newedealers. MUNN \& CO., Publisiers,

361 Broadway, New York.

## 2Business and Personal.

he charge for insertion under this nead is One Dollar a line for each insertion; about eioht words to a line
Advertisements must be received at publication offic as early as Thur
ing veeek's issue.

Marine Iron Works. Chicago. Catalogue fre For hoisting engines. J. S. Mundy, Newark, N. J. Yankee Notions. Waterbury Button Co., Waterb'y, C Handle \& Spoke Mchy. Ober Lathe Co, Chagrin Falls, O , Selling Agency Wanted. G. Earlie, 150 Nassau St, N.Y. We want handy things to make for bicycles on con
ract or royalty. Place \& Terry, $24 \tau$ Centre St., New York Combined Ink, Pen, or sale. M. Scougale, Fort Worth, Texas
Improved Bicycle Machinery of every description Garn M Concrete Houses - cheaper than brick, superior
tone. " Ransome," ${ }^{\text {T } 57}$ Monadnock Block, Chicago. Machinery manufacturers, attention! Concrete an nortar mixing mills. Exclusive rights for sale. "Ran ome," 757 Monadnock Block, Chicago.
The Norwich Line-New York to Worcester, Lowell,
ardner, Winchendon and Keene, N. H. From Pier 40 Gardner, Winchendon and Keene, N. $\mathbf{H}$
The celebrated "Hornsby-Akroyd" Patent Safety O chine Company. Foot of East 138 sth Street, New York. The best book for electricians and beginners in elec tricity is "Experimental Science," by Geo. M. Hopkins.
By mail, \$4. Munn \& Co ${ }^{\text {publishers, } 361 \text { Broad way, N. Y. }}$. 2e Send for new and complete catalogue of scientif and other Books for sale by Munn \& Co. ${ }^{361}$ Broidwa

## 舞

HINTS TO CORRESPONDENT
Names and Address must accompany all letrers
or no attention will be paid thereto. This is for out information and not for publication
References to former articles or auswers shou
give date of paper and page or number of question.
(nguiries not ansere m 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 lette or in this department. cach must take his turn.
Buyers wishing to prurchase any article not adver
in our columns will be furnished with address
houses manufacturing or carrying the same.
Special Written Information on matters of
personal rather than general interest cannot be
expected without remuneration.
cientific American Supplements referre
to may be had art the office Prie 10 cents each
ond
to may be had at the office. Price 10 cents each.
Books referred to promptly supplied on receipt
Minerals sent for examination should be distinctly
marked or labeled.
(7212) W. H. M. writes: I have your Experimental science," by George M. Hopkins, fro power dynamo induction coil electric mot, terin with very gratifying success in each instance, and am now building the easily made telescope. 1. Now what wish to know is this: On the astronomical eyepiece you ay the eye lens should be $1 / 2$ inch focus, the field lens $11 / 2$ nch focus, and distance apart 1 inch. Now is this dishe conves the convex side of the eye lens to the plane face of field
lens? A. The 1 inch is the distance between the lenses, . e, the clear space. 2. Aleo where can I get the necessf ry focus and distance apart of lenscs for the stronger
astronomical eyepiece that you suggest should be made or the instrument? 1 am using the $21 / \mathrm{a}$ inch meniscus lens for objective. A. The eyepiece is called in the books the Huygenian or negative esepiece, in whicl the curved egepiece the ratio of focal lengths of the lenses is alwas eyepiece the ratio of focal lengths of the lense distance between is half the sum of the focal length. For a stronger eyepiece you might use lenses whrse focal lengths are 1 inch and $1 / 3$ inch, and place them $7 / 3$ inch apart. You will find these rules in the "En cycloyedia Britannica," vol. 23, page 143 . Tus you can can I some ibrary in your city, whoutdoubr. 3. Where can I get information nean mean, of course, a fairly powenfuld suges that the best
animal life in water. A. We would suggest way for you to get the dimensions of a compound micro. scope is to seek the professor of physics in one of the colleges or high schools, and tell him what you have done and wish to do. You will probably find him willng to help you and to allow you to measure and copy his
(7213) N. N. asks: Can yuu tell me if there is any way of preserving fowers bo as to rctain their con A . Vambe information on the subject of your query will oe found in Scientific
American, No. 23, vol. 66, also Suprlement, Nos. 745 and 1078 . Price 10 cents each by mail
(7214) W. L B. asks : (1) Can I obtain more voltage from a Leclanche battery by adding an ex strength ? A. No. (2) What effect would it have? A The solution should be saturated, and any extra amount would settle to the bottom of the cell in solid form. I iujures the cell. (3) If I put in anextra amount of water,
and sal ammoniac in proportion, will I obtain greater am. perage ; and if $I$ put in only enough solution (standard strength) to cover but one inch of the anc and carbon, will I have the same voltage as if the ordinary amount voltage is the same, no matter now little, of only one o of both plates are in the liquid. The amperage increase because the resistance decreases in proportion to the inciease in the area of the plates. (4) Will an ordinary one horse tread power be sufficient to run an eight light
dynamo? and would the power be sufficiently steady A. It would run the dynamo, but a horse power will not run a dynamo steadily enough to light lamps.

INDEX OF INVENTIONS For which Letters Patent of the United States were Granted SEPTEMBER 14, 1897, AND EACH BEARING THAT DATE. (See note at end of list about copies of these patents.]





 599,859 $\underset{\substack{50,088 \\ 50,0,13}}{\substack{13}}$




## 








## 



(Continued on page 20c)

