own title to be respected. This is what the King fully realizes, and he has taken on himself the task of showhave to follow.—St. Paul's.

Austria

The American papers have taken little notice of the | the water. 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, prised by them in the night, and very few were able to in the closing days of July, the scene of dreadful catastro- save more than their lives. Trees and roofs were full of is covered with linoleum, sometimes over a layer of phes, the ultimate cause of which were heavy rainfalls. month and affected primarily the mountainous districts, flooding the northern slopes of the Erzgebirge and the mountains of Saxony and Bohemia. But the swollen Schreiberhau. Fifteen houses and many barns, etc., with thin woolen cloth, and with cork lining underrivers soon poured their overflow broadcast over the feld, Dessau, Wittenberg and Magdeburg, within the scarcely anything is left, and another has lost some 330 first week of August. At the same time the Neisse and feet. the Bober were working harm in Silesia. Not till; August 5 did the Danube endanger the Hungarian lowlands from Presburg downward.

from the figures obtained by the Meteorological Institute of Chemnitz, Saxony, as representing the total; proach this year's in extent. The firemen of the lo-houses and captains' rooms on bridges are entirely rainfall on the two days above mentioned for the king- cality took up the rescuing work, and in one case as- made of steel and fitted out with non-combustible dom of Saxony alone. Over 160,000,000 cubic yards of sisted a physician, Dr. Maly, in saving 32 people from materials. Since all such changes will be a little exagwater were recorded. The losses were alarmingly great. In Silesia the total damage suffered was estimated at \$5,000,000. In Saxony, not taking into account the destruction of all harvest products, we must take tified. the damage sustained to represent at least \$17,090,000. 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 principal street of the city, whereby houses were undermined of property; the fields having been made unfit for clothing, books, etc. However, for the present, wood and building after building was razed to the ground, the street being soon left one string of desolate ruins. 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 enrying with it many people. Private houses and shops | patented in this country.

often buried human beings under their ruins, in one case ten persons at one time. Thirty houses were deing his subjects by his personal example the road they stroyed in Hainsberg, thousands of animals were lost, and many families reduced to beggary.

The valley of the Mulde was more fortunate, and the The Recent Floods in Eastern Germany and in losses are mostly of property. The crops are swept away, only a very small fraction being recovered from

In the Riesengebirge the floods were rendered all the more dreadful by the fact that most people were surpeople clamoring for help. Others, who would or could These reached their climax on the 29th and 30th of the not part from their possessions, were drowned. Many not ceiled. In the officers' rooms the ceiling is made houses have disappeared, leaving no trace of their po- of steel plates 11/2 millimeters thick and lined with sition, among them the electric station of the village of cork. For cabin bulkheads the steel is covered were utterly destroyed. The calamity was further in- neath where it is desirable to exclude sound or lower prosperous valleys, and the waters of the Elbe and creased by the gas lamps giving out, leaving the strug, the temperature. Where heat is radiated from engine Mulde reached in quick succession the towns of Bitter- gling men and women in the dark night. Of one street or funnel casings, cork lining is resorted to. All

up which were so mangled that they could not be iden-

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 cultivation for several years to come. Great poverty will necessarily come to many people in a land where done and the aid that can be given.

THE records of the United States Patent Office show tirely demolished, the water rushing down the pit, car- that upward of 6,500 forms of car couplings have been of war the protective under-water deck is never cut

Restrictions in Use of Wood for Interior Fittings of Ships.

As 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 Naval Institute.

"In the outfit and construction of the new German ships wood is used only for a few minor points. Wooden deck planks are no longer laid; steel deck plating cork. In the crews' quarters the sides of the ships are wood is removed from the ammunition rooms, save the racks for shells and powder charges, which are South of the Schneekoppe (the highest mountain of | still made of wood. For all ladders and steps steel is the Riesengebirge), the little brook Aupa, ordinarily used. The handrails on the conning bridges are no very harmless, swelled to a powerful torrent and inun-longer of wood, but of some other material which will The awful extent of the disaster may be imagined dated the city of Trautenau. Floods had been wit- not burn or splinter, and which is more agreeable to nessed there in 1858 and 1882, but they did not ap- the touch of the hand than steel or brass. Chartcertain death. On one occasion, a child floating about gerated, it seemed to be advisable to abandon wood in its cradle was saved. Fourteen bodies were picked | for the interior fittings, and especially for the furniture, and to resort to fireproof material which will 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 outfit of the staterooms, the mattresses, blankets, cannot be abandoned entirely. Top signal masts, flag poles, etc., will be made of steel, but there one Some houses have disappeared altogether, leaving no money is scarce at all times. Collections were, of course, cannot save weight. The fighting capacity of the set on foot by many persons to alleviate the evil, and ships is without doubt increased through these inthe governments, too, are inquiring into the matter, novations, since the ship is less apt to burn, the with a view of ascertaining the extent of the damage effects of splinters are restricted, and considerable weight is saved, which is available for ordnance and armor."

It may also be mentioned that in German ships through either for ventilation or coaling purposes.

RECENTLY PATENTED INVENTIONS. Engineering.

STOP MOTION FOR GOVERNORS. George F. Boos, St. Mary's, Ohio. In centrifugal governors for engines and other machines, the stop motion, 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 to turn is controlled by an arm carrying an idler pulley for the belt, and a spring-pressed lever held in engagement at one side of its fulcrum with the cam has connection 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.

Railway 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 to a standstill. The improvement comprises a springpressed lever frame fulcrumed on brackets attached to the sides of the car platform, the car having such brackets at each end, and removably hung on this frame is a basket 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 naratus which may be operated from the car is provided joint mechanism connected to the cross bar which throws ism consisting of crank shafts extending across the track | legs. and operated upon by pivoted levers which extend lengthwise of the rails, the lever being depressed by wheels mounted on the car axle, the arrangement being such that they may be shifted laterally to engage the proper 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 supporting 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 a vessel. It has a centrifugal-operating governor adapted pole, while a fork pivoted to the pole is apertured to re ceive the pivot of the trolley wheel.

Bicycles, Etc.

REAR ADJUSTING FORK. - John J. Naregang, Leesport, Pa. Instead of the ordinary coupling 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 the chain by means of a set screw, this improvement provides a novel construction by which the removal of the axle and its readjustment, without breaking or opening the chain, is more 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 nut, while an adjusting screw having a forked end loose ly embraces the axial pin.

BICYCLE SADDLE.—Charles H. Young, New Yerk City. This invention covers a novel construct tion of the spring frame of the saddle, designed to retain the saddle in its normal form, and the shape of the saddle 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 supported, while other parts liable to injury are relieved from pressure, the saddle having the form required by nature for easy and safe riding.

BICYCLE REST.-Eugene Church, Tacoma. Washington. This is a device to facilitate cleaning a bicycle, holding it upturned and reversed, in such way that every part may be readily reached, or the frame or parts of the machine may be conveniently repaired. It has four legs. which fold closely together to take up but ried by the plateengage the dies. 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 James T., and John A. Polson, Laclede, Mo. These apparatus which may be operated from the car is provided by this invention, which comprises essentially a toggle this invention, which comprises essentially a toggle handle bars by cords, while the two other legs are similarly in well drilling and other machinery, permitting a long secured to the center brace at each side of the saddle, drop of the working tool and requiring but a compara-

> G. Spiegel, New York City. This is a pneumatic tire stop is fixed to the crankhead face at or near the opposite made in sections, each of which is adapted to be independently inflated, means being provided for holding the several sections firmly on the rim of the wheel and in engagement with each other. The preferred manner of joining the sections together is by means of a stud crankhead is being rotated continuously in one direcat one end fitting into a corresponding depression in the end of an abutting section, and it is also designed that the tread surface shall be slightly stepped, one section projecting slightly beyond the abutting end of an adjacent section.

SPEED INDICATOR AND CYCLOMETER. Willis H. Ostrander, Boston, Mass. This combination device for indicating the speed and at the same time registering 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 hand a distance over the dial corresponding to the speed of travel. Its casing is divided

by a horizontal partition into a lower and upper chamber, the upper wall of the latter having a dial graduated to indicate the rate of speed, and also having openings through which figures on distance-indicating wheels may

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 coacting with the threads on the shank, the threads of the thimble being capable of moving through the space between 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 attachment 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-

MECHANICAL MOVEMENT. -Sidney M., the movable portions of the track, the operating mechan- the necessary cords being permanently attached to the tively small amount of power for again lifting the tool. At one side of the center of the face of a continuously TIRE -- Jacob A. Lewis and William rotating crankhead is pivoted a rope-carrying arm, and a 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, producing an alternate lift and drop motion while the

Agricultural.

GREENHOUSE. - William H. Witte, Baltimore. Md. To enable the valuable space of the walks to be utilized for benches carrying plants, etc., the greenhouse, according to this invention, is provided with rails extending transversely 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. Pivoted type bars, each carrying at one end a matrix, according to this invention, are adapted to run on guides, to be 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 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 framework.

RANGE GAS GENERATOR. - Miguel Velez, New York City. A gas plant especially adapted for generating wood gas has been devised by this inventor, 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 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 twenty 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 dirt and refuse in its path up into a casing or receptacle Its rear wheels have rubber tires, that it may run noise lessly, and they serve as drivers for the brush drum arranged transversely within the enlarged rear portion of the casing, there being a gear and lever mechanism for throwing the wheels into and out of connection with the brush drum shaft. A series of narrow brush belts, arranged side by side, is employed in preference to a single broad belt, facilitating repair and substitution when

WEIGHING AND DUMPING VEHICLE.-George H. 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, ascertain the correct weight of the quantity delivered, or whereby it may be weighed by the seller as it is placed in the vehicle is the object of this invention. Provision is made for 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 dum 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 coal or other commodities. The box or bucket has a hinged bottom and securing link, while the bail has a projecting steering arm which may be adjusted to and secured in any desired position, a tripping rope serving also as a steering rope.

TOBACCO STEMMING MACHINE. - Milton C. Baughan, Richmond, Va. This invention provides a mechanism whereby the spread leaf is folded and carried forward, turned at right angles to bring it into alignment with the belts 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 from end to end or broken or cracked in one or more

M SICAL INSTRUMENT PEDAL.-Frank H. Dernell and Phillip H. Brehmer, Rutland, Vt. This invention provides an organ pedal attachment for pianos which may be disconnected in a ready and convenient manner and folded up to occupy but little space, the attachment being so made as not to detract in the least from the appearance of the instrument and enabling any one who has a piano to secure church organ practice at

ATTACHMENT FOR STRINGED INSTRU-MENTS.-Justus L. Kelman, Maroa, Ill. For guitars, mandolins, banjos, etc., this inventor has devised an at tachment to permit the performer to conveniently press a number of strings and readily sound the chord when the corresponding strings are picked. Arranged in a suitable frame are sets of pressers, each adapted to press a set of strings into chord position, bars actuating the pressers and keys actuating the bars, sets of levers en gaging the bars being actuated from the keys, and each lever being provided with adjustable blocks for engagement with the corresponding bar.

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 become untied. It comprises a body on which are fastening devices, 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 conveniently locking the sash closed or in any desired position. supporting it equally at both sides and preventing 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 and closing the taggle levers toward or from each other, to carry their free ends out of or into engagement with

STOVE.—Chauncey T. Andreas, Bay field, Wis. This is an improvement in stoves having air heating tubes or flues arranged'in the combustion chamber, there being two series of vertical air flues arranged opposite each other within the casing, a rear vertical outlet flue having two lateral openings at the bottom, a central opening at the top, and a central air inlet at the front, which extends down to the bottom of the combus tion chamber.

COOKER.—Annis B. Eighmy, Clifton No. 6. Springs, N. Y. A main chamber and a water chamber in this cooker are separated by a vertical partition, the chambers having a common bottom beneath which is a hot air chamber. The main chamber has a diaphragm to support vessels, a vertical air tube extending above the diaphragm, and a second diaphragm being placed above the air tube, with other novel features, the cooker being provided with compartments and receptacles which may be used for boiling, baking, steaming, and any process ordinarily followed in cooking.

WATER CLOSET FLUSHING. ETC. - William A. Eberhart, Asbury Park, N. J. The apparatus provided by this invention comprises a tank having a discharge pipe to the upper end of which is secured a cap, but spaced from the pipe sufficiently to allow water to flow between the pipe and cap, while a vertically movable 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 supply at each flushing operation.

APPLYING REMEDIES. - Paul J. Fouquier, San Francisco, Cal. This invention comprises simple appliance for holding lozenges, pastils, medi cines, antiseptics, etc., in the mouth in such manner that they may be retained there for a considerable length of time until they are gradually dissolved or inhaled.

Note.- Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS, ETC.

VALVES AND VALVE GEARING. A practical text book for the use of engineers, draughtsmen and students. By Charles Hurst. With numerous illustrations and four folding plates. London: Charles Griffin & Company, Limited, Philadelphia: J. B. Lip-pincott Company. 1897. Pp. 135. Price \$3.

The author has succeeded in his expressed intention to deal with the subject of valve gearing in a simple and interesting manner. Without any unnecessary preamble, he commences with a clear explanation of simple valve gear and gives formulæ for finding the area of ports, the lead, cutoff, percentage of release and compression, etc. Chapter I deals with slide expansion gears, and then follow two chapters on link motions and other reversing gears. This concludes Part No. I. The second part is devoted to Corliss valves, and the four chapters deal successively with gears without trip motion; single eccentric gears with trip motions; double

eccentric geare, with trip motions; and single eccentric gears, with large range of trip. The work is free from any elaborate theoretical discussions, and the explanations of the various types of valve gear are accompanied by diagrams and sectional views of the parts which render them easily understood. The book is admirably suited to the needs of the practical mechanic.

THE CALCULUS FOR ENGINEERS. John Perry. London and New York Edward Arnold. 1897. Pp. 378 Price \$2.50.

This is an excellent work on the calculus for mechanical and electrical engineering students, and includes what has been the most important part of the regular course in the Finsbury Technical College. It has been supplanted by easy work from other authors. The chapters are devoted to the study of xn; compound interest law, the harmonic function and general differentiation and integration. Another book on the calculus has been needed for some little time, and the present work fills a long felt

BILDER FRAN SVERIGE. Utgifna af Avenska Turistföreningen. Views of Sweden, published by the Swedish Touring Club. Leipzig: R. F. Koehler. Pp. 110.

This is a pamphlet filled with exquisite half tone illustrations of the scenery of Sweden, both in town and country. It is little wonder that Sweden is considered one of the choicest resorts for tourists which the civilized world has to offer. The Swedish Touring Club is to be congratulated in the production of this handsome book.

SCIENTIFIC AMERICAN BUILDING EDITION

SEPTEMBER, 1897.-(No. 143.)

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- No. 11. Half page design of the New Rathsapotheke in Bremen
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- No. 13. Miscellaneous Contents: New York as a furniture market.-Advantages of fresh air in apartments. - Exterior plaster for dwellings.-Rule for making good mortar.—Premature occupation of new homes; a test for relative humidity of habitable apartments.-Ventilation of apart ments.-Does your faucet leak?-A new recording thermometer, illustrated.-Beautiful work wood finishing.-Slate roofs.-Dec-co-re-o illustrated.-Berkfeld filter, illustrated.

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(7212) W. H. M. writes: I have your "Experimental Science," by George M. Hopkins, from which I have made the simple electric motor, the hand power dynamo, induction coil, camera and telephone, with very gratifying success in each instance, and am now building the easily made telescope. 1 Now what I wish to know is this; On the astronomical eyepiece you say the eye lens should be 1/2 inch focus, the field lens 11/2 inch focus, and distance apart 1 inch. Now is this distance measured from the plane face of each lens or from the convex side of the eye lens to the plane face of field lens? A. The 1 inch is the distance between the lenses, i. e, the clear space. 2. Also where can I get the necessory focus and distance apart of lenses for the stronger astronomical eyepiece that you suggest should be made for the instrument? I am using the 21/2 inch meniscus lens for objective. A. The eyepiece is called in the books the Huygenian or negative eyepiece, in which the curved faces of both lenses are turned away from the eye. In this eveniece the ratio of focal lengths of the lenses is always 3:1 and the distance between is half the sum of the focal lengths. For a stronger eyepiece you might use lenses whose focal lengths are 1 inch and 1/3 inch, and place them % inch apart. You will find these rules in the "Encyclopedia Britannica," vol. 23, page 143. This you can see in some library in your city, without doubt, 3. Where can I get information necessary to build a microscope? I mean, of course, a fairly powerful one that will show the animal life in water. A. We would suggest that the best 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 willing to help you and to allow you to measure and copy his

(7213) N. N. asks: Can you tell me if re is any their color and shape a A. Valuable information on the subject of your query will be found in Scientific AMERICAN, No. 23, vol. 66, also SUPPLEMENT, 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 extra amount of sal ammoniac to solution of standard 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. It in inres the cell. (3) If I put in anextra amount of water, and sal ammoniac in proportion, will I obtain greater amperage; and if I put in only enough solution (standard strength) to cover but one inch of the zinc and carbon, will I have the same voltage as if the ordinary amount is used? A. Answer to both parts of question, yes. The voltage is the same, no matter how little, of only one or of both plates are in the liquid. The amperage increases proportionally to the increase in the area of the plates, because the resistance decreases in proportion to the increase 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.]

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Alloy, A. F. Cothias
Armature for electrical generators and motors, B. G. Lamme
Back, adjustable, A. Mauchain
Sales, method of and apparatus for compressing, S. R. Montgomery
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