A. The greatest pressure on the nut will be between 9 and 10 times the maximum pressure on the crank pins. 2. Would a cast steel nutwork better and cooler than a cast iron or gun metal one? A. With sufficient bearing surface, we think you will find cast iron a satisfactory material for

- (27) W. H. asks: Is there any rule for the weight of green pine timber? What is the differ ence in weight between green timber and dry time ber? A. It would be impossible to answer these questions very exactly, without experimenting in each special case. Dry white pine weighs about 25 lbs. per cubic foot, and green pine from 30
- (28) J. B. K. asks: 1. Which is the best for a base to plate on (for such articles as spoons and forks), nickel silver, white metal, or albata? A All these alloys are good for the purpose. 2. Of what metals are these different bases composed? A. Nickel silver is a variety of German silver, of which many kinds are in use. The following is a good one for plating on: Copper 55, nickel 24, zinc 10, tin 3, and iron 2 parts. White metal consists of: Tin 82, lead 18, antimony 5, zinc 1, and copper 4 parts. Albata is another name for German sil
- (29) W. H. E. asks: What should be the number of revolutions per minute of a screw propellerin a model 3 feet 6 inches long, to gain the maximum speed? A. The question is too indefinite. Probably you could not get a correct solution in any way but by experiment.
- (30) W. G. M. says: 1. I have become near sighted, my eyes being in different degrees affect ed. I can see to read well at the common reading distance, which does not seem to be the case with others I have noticed similarly afflicted. What has caused it, lamplight or too constantly looking at near objects? A. The natural eye has the pow er to cause the front of the crystalline lens to become more or less convex as objects looked at are nearer or farther from it. In your case that power appears to be lost by over exertion in looking at near objects. 2. Can my sight be restored? A. Probably it can, with proper care and rest. In looking at distant objects I am compelled to partly close my eyes, when the objects become far more distinct. Why is this? A. In closing the eye, the light passes only through the central portion of the lens, and this part is of longer focus. 4. Will the use of glasses strengthen the eyes, or cause a growing necessity for them? A. If used constantly they will not be likely to remedy the defect. 5. Would their use have a tendency to make both eyes alike? A. Probably not 6. Should they be worn continually? A. No.
- (31) G. C. asks: Is the steamer Great East ern constructed so as to be divided in any number of parts, each part to sail independently on entering a small harbor or in case of a rough sea? A If itever was constructed in this manner, the matter was kept a profound secret.
- (32) J. P. W. says: In Science Record for 1874, on p. 574, are directions for making a portable field camera obscura. I have followed the directions, but it will not work, as the lens will not throw the image downward. A. The difficulty probably is that the lens is not long enough in fo cus. The distance from the center of the lens to the mirror and thence to the paper should be the focal length of the lens. It will not be practicable to use a lens of a shorter focus than 2 feet.
- (33) C. K. asks: 1. Will a good achromatic object glass of 2 inches diameter and 3 inches focus, with an eyelens of 1/2 inch focus, make a telescope strong enough to see the phases of the planets Venus and Mercury? A. Yes. 2. Will it show the globular form of Jupiter and the ring of Saturn? A. Yes; with a steady atmosphere you should see the belts on Jupiter also.
- (34) J. M. T. asks: 1. I wish to make a telescope. Which will be the cheapest, a reflecting or refracting telescope? A. In small telescopes there is not much difference. 2. What will an object glass, 21/2 inches diameter, of 44 inches focus, cost me? A. About \$20. 3. What power would it stand? A. A power of 150.
- (35) C. R. says: It is desired to surround upright cylindrical stoves by shields to protect woodwork, etc., from the intense heat radiated. Can you suggest some simple and efficient form and material? There should be a door to permit the introduction of coal. A. Sheets of zinc will be the best, unless you require an ornamental effect. In the latter case, use Russian iron.
- (36) J.M. G. says: A steamboat boiler is filled to top of steam chimney with water, and weight of water in pipe connecting the gage with boiler. In testing the boiler to 60 lbs. water pressure, will it be necessary to show 65 lbs. on the gage in order to have 60 lbs. on the boiler? Will the gage show 5 lbs. more than a gage placed at the pressure pump? A. When there is a pressure of 60 lbs.; at the highest point of the boiler, under the circumstances stated, the gage will indicate 65 lbs., and the gage in pressure pump will indicate a still higher pressure, if, as is generally the case, it is subjected to the action of a still higher column
- (37) A. N. asks: How can I write or draw on smooth plates of zinc, and afterwards etch the marks in with acid? A. Mix 1 part strong nitric acid and 100 parts water: pour over the plate, and let it run to and fro. Wash with water, and pour weak gum water over the plate.
- (38) X.X. X. asks: How can I make a good oleate of soda? A. Oleic acid forms two classes of salts, normal and acid. The normal salts of the alkalies are the only soluble ones. They form soaps, and by the evaporation of their aqueous solution may be obtained in the condition of an

- state of purity is a matter of some difficulty, owing to its tendency to combine with oxygen. To obtain pure oleic acid, olive or almond oil is saponified with potash; the soap is decomposed by tartaric acid, and the separated fatty acid, after being washed, is heated for some hours in the water bath, with half its weight of lead oxide, previously reduced to a fine powder. The mixture is then well shaken up with about twice its bulk of ether, which dissolves the oleate of lead and leaves the stearate; the liquid after standing for some time is decanted and mixed withhydrochloricacid; the oleic acid thereby eliminated dissolves in the the ether, and the etherial solution, which rises to the surface of the water, is decanted, mixed with water, and freed from ether by heat The acid may now be converted into soap by the addition of pure caustic soda, which is afterwards separated from its aqueous solution by the addition of chloride of sodium, and pressed to remove excess of moisture. Owing to the strong affinity of the liquid acid for oxygen, as prepared by the above method, it has a brownish color and a slight odor see answer to A. B. C., below
- (39) A. B. C. asks: Can oleate of soda be made chemically pure? A. If absolute purity be requisite, try the following: Redissolve the oleate soda, as obtained by the above method, in water that has been boiled for some time to expel all the air, and again decompose with tartaric acid in vessels filled with carbonic acid gas. Allow the acid to settle, decant the supernatant liquid, and wash with water free from air. Then add a large excess of strong ammonia, and, when solution is complete, precipitate with chloride of barium. The oleate of baryta thus formed is dried and boiled with alcohol. During this operation the salt melts and forms a viscous liquid, but a portion of it is dissolved, and is deposited in crystalline plates as the liquid cools; these are again crystallized from alcohol, and on decomposing them with tartaric acid pure oleic acid is obtained.
- (40) W. S. D. says: 1. A church is being heated by a hot air furnace, but there is a fault in the ventilation, which is effected by one large pane in each window hanging on a swivel. When the church cools, there is a cold damp air, and the furnace draws cold air from the inside of the church A. The supply of fresh air to the furnace should be taken from the exterior of the building, by means of an enclosed shaft, which may be constructed of matched boards for the most part, being of brick near the furnace. Place a valve, or shutter on pivots, within the shaft, to close it when required. Additional openings for ventilation should be provided at the ceiling.
- (41) J. F. B. asks: 1. Is it necessary that the wires of a galvanic battery be copper, or will iron wire do? A. Not absolutely necessary: but as the conductivity of copper is about seven times greater than that of iron, it is better to use cop per. 2. Is the vapor of a battery, consisting of copper zinc plates, poisonous? A. No.
- (42) X. Y. Z. asks: 1. How is an ohm, in electricity, measured? A. An ohm, the unit of electrical resistance, is roughly equivalent to foot 1.9 inches in length of German silver wire of No. 29 British Association gage. It would not do however, to place much dependence on its accuracy as thus determined, as the resistances of various samples of wire vary considerably. Standard copies of the ohm are supplied by various foreign manufacturers of telegraph apparatus, and possibly, also, by some American houses. 2. How are the connections made in the open circuit system of telegraphy? A. The key is provided with both front and back contact points. At terminal stations the line is connected to the key lever; one pole of the battery and the back contact point are connected to earth, and the opposite pole of the battery to the front contact of the key. Except when the station is transmitting, the lever is allowed to remain constantly on the back contact.
- (43) B. S. S. asks: 1. How long will a silver solution hold its strength? A.The cranide solution should last for months if kept, as much as possible from the action of air. 2. Ought it be bottled when not in use? A. Yes.
- (44) C. R. asks: The quality of the magnet is destroyed by fire. Does this magnetic property of the iron impart itself to the fire? If not what becomes of the magnetic property? A. The attractive property of a magnet is supposed to depend upon a peculiar arrangement of the molecules of which it is composed. Bodies capable of becoming magnetic offer more or less resistance to an arrangement of this kind. We may, there fore, assume that the molecules of a magnetic substance are in a state of strain. Heat reduces the conditions of restraint by imparting motion to the molecules, and thus allows them to resume their formerposition.
- (45) C. A. H. asks: How can I make an electrical machine capable of giving the same power as a Bunsen battery? A. The ordinary electrical machine is not capable of producing a current equal to that from a Bunsen battery. A stick of shellac rubbed with flannel, however, will produce a greater tension, but the current from such a source is infinitesimal. A magneto-electric ma chine would cost more than the battery.
- (46) W. R. asks: 1. What are the best width and thickness of single steel horseshoe mag nets that will do to form a compound one? A Make the width about $\frac{1}{20}$ of the length, and the thickness $\frac{1}{4}$ the width. 2. Of what size should single electro-magnets be to form a compound one? A. An electro-magnet, such as used for the sounders or registers in telegraph offices, will be found sufficient. 3. How shall I temper the magnets? A. For permanent magnets use the best fine grained steel; temper as high as possible, and then draw, by heat, to a violet straw color. 4. How many feet of wire are required to saturate single amorphous mass. The isolation of oleic acid in a par magnets to form a compound 10 or 12 inches

COMMUNICATIONS RECEIVED.

HINTS TO CORRESPONDENTS.

INDEX OF INVENTIONS

Alarm, electric fire, W. Gates	174 070
Auger, earth, A. W. Morgan	
Badge, H. H. Snow	
Baking sprinkling attachment, A. Rannie	
Bale tie, J. A. Bostwick	
Bale tie, J. R. and H. A. R. Horton	
Bale tie, D. H. Mathias	
Barrels, finishing, E. W. Gillman	174,228
Bearing, anti-friction, A. G. White	174,331
Bed bottom, E. P. Carter	174,062
Bed bottom, P. C. Hard	174.236
Bed bottom, P. C. Hard Bed bottom, spring, J. E. Lord	174,080
Bedstead, folding, F. M. Kibbey	
Bell. door, H. A. Dierkes	
Billiard table, J. Peck	174.151
Bird cage, F. J. Meyers	
Bleaching extract or hemlock bark, E. Bradley	
Boat and trunk, combined life, W. E. Facer	
Boiler, culinary, C. M. Garber	
Book rack, C. F. Kuhnle	
Boot counter stiffener. etc., J. J. Adgate	174 174
Boot heels, polishing, L. Graf	174 901
Boot heels, shaping, R. Taylor	
Boot-pegging machine, N. B. Dit Lepine	
Boot shank support, J. S. Nelson	
Boot stiffeners, making, W. N. Sprague	
Boot sample holder, J. D. Bridendolph	
Boot sole plate, etc., E. S. Perry	
Bottle corking machine, F. J. Berry	
Bottle stopper, A. Luthy	
Box, W. Von Darteln	174,328
Bridge gate, draw, J. Schwennesen	174,307
Bridge, truss, S. Conklin	174,120
Broiler, F. Martin, Jr	174,269
Burner, lamp. W. H. Parr	174,288
Button, J. R. Smith	174,161
Can nozzle, oil, R. H. Hasenritter	
Can opener, J. S. Dunlap	
Can, sheet metal, D. Steiner	
Can, sheet metal, W. A. Wicks	
Can nozzle, oil, F. W. Wiesebrock	
Car axle box, C. H. Cox	
Car axle box, Robinett, Brown, and Pickett	174 906
Car coupling, C. H. Briggs	
Car coupling, A. H. Clark.	
Car coupling, W. C. Hawley	
Car coupling, W. G. Hawley	
Car coupling, J. S. Purnell	
Car coupling, J. A. Vogler	174,526
Car, feeding stock, J. R. McPherson (r)	
Cars, grain door for, Z. M. Hibbard	174,289

but the amount did not suffice to determine its chemical constitution. Will you send about 8 grains of the mineral, free from the gangue?—H. M. W.—Thescale consists chiefly of carbonate of lime and sesquioxide of iron. The color does not clutch, friction, J. Turner. 174,308 (Clutch, friction, J. Turner. 174,308) (Clutch, friction, J. Turner. 174,309) (Clutch, Juley, Jul	long? A. An electro-magnet, charged by two or three Daniell cells, will answer the purpose.	Carbureter, J. R. Allen	174,073
examined, with the results stated: 1. I.—Teit position that the mineral was mean; 16, with which it agroot in physical charactery. 17, which is agroot in physical charactery. 18, page from the garage of the physical charactery. 18, page from the garage of the physical charactery. 18, page from the mineral, from from the following and heavy the physical physical contributions upon the following subjects: 18, page from the Scientific and contributions provided in the physical physical contributions provided physical contrib		Carpet fastener, F. O. Clark	174.063
tin, with which it agrees in physical characters is provided and the amount of its own with the amount of the mineral, free from the gauges -1. W. —Thecatic consists chiefs of creaming its provided provided in the mineral, and we will full post what it is provided in the mineral provided i	examined, with the results stated:	Charcoal and acetic acid, etc., H. M. Pierce	174,292
chemical constitution. Will you send about 5 periants of the uniteral, fore from the parallel — In Carpital of the Uniteral, fore from the parallel — In Campaign — In Cam	ite, with which it agrees in physical character;	Cigar mold, N. Du Brul (r)	6,567
M.W.—Thoreals consists ethody of enthouse of the and control of two. The cold code and forms and sequential of two. The cold code and forms and sequential code and se	chemical constitution. Will you send about 8	Cloth, finishing, C. E. Scrimgeour	174,308 174,166
modules anything injurious.—J. C. T.—Send us what it is port of the Entertrial Ambitton's section of the Scientific Ambitton's section of the	M. W.—Thescale consists chiefly of carbonate of	Clutch, friction, J. Turner	174,324
OMMUNICATIONS RECEIVED. The Editor of the Scinety Process of Company of the Compa	indicate anything injurious.—L. C. T.—Send us a specimen of your mineral, and we will tell you	Coal scuttle, C. Smith	174,314
The Editor of the Setterstrop Assembly as Companyon, C. D. Peck	i	Comb, C. H. Noyes	174,084
original papers and contributions upon the following in subjects: On a Camon Monitoring, etc. By R. H. On Botting, By E. H. D. On a Camon Monitoring rote and the company of the company	The Editor of the Scientific American ac-	Cornpopper, C. O. Peck	174,150
On the Problems (Gumery, etc. by R. H. On the Change (Gumery) with the Change (Gumery) of t	original papers and contributions upon the follow-	Corset spring, J. Day	174,208
On a Cannon Musical Instrument. By H. M. B. On a Geometrical Problem By J. D. H. On a Geometrical Problem By J. D. H. On a Geometrical Problem By J. D. H. On the Moon. By J. A. S. On the Moon. By J. C. H. C. The Moon of the Moon. By J. C. C. W. C. R. F. P. D. L. WJ. N. B. D. Y. W. C. W. C. D. S. H. A. P. W. C. L. L. E. W. W. The Moon. By J. C. C. W. C. R. F. P. D. L. WJ. N. B. D. Y. W. W. C. D. S. H. A. P. W. C. L. L. E. W. B. HINTS TO CORRESPONDENTS. Correspondents whose inquiries fall to appear about the part of the Moon. By J. C. C. W. C. R. F. P. D. L. WJ. N. The Moon. By J. C. C. H. S. W. HINTS TO CORRESPONDENTS. Correspondents whose inquiries fall to appea. By J. C. C. M. C. R. F. P. W. L. H. W. H. H. W.	On a Car Brake. By M. M. S.	Cultivator, M. S. Tarkington	174,320
On a Geometrical Problem: By J. D. L. On the Mississipi Improvements By J. D. I. and by G. P. S. On the Mississipi Improvements By J. D. I. on the Control of the Mississipi Improvements By J. D. I. on the Control of the Mississipi Improvements By J. D. I. on the Control of the Mississipi Improvements By J. D. I. On Sondor Phenomenon. By J. C. On a Solar Phenomenon. By J. C. On Another Explosion. By H. I. P. On Transplanting Trees. By C. B. H. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W. R.—C. D.—S. H.—A. F.—W. C. L.—B. W. — W.	On a Cannon Musical Instrument. By H. M. B.	Curry comb, C. B. Bristol (r)	6, 9 56 174,329
and by O. P. S. On the Motors and Employees. By O. O. T. E. On a Solar Phenomenon. By J. C. On a Solar Phenomenon. By J. C. On A nother Explosion. By H. I. P. On Transplanting Trees. By C. H. H. Also inquiries and answers from the following: C. A. W.—R. P. F.—B. I. W.—J. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. I. R. B.—F. W. W. H.—C. D.—S. H.—A. F. W.—C. R. B.—W. HINTS TO CORRESPONDENTS. S. M. W. W. H.—B. W.—L. H. B.—F. W. Brought of the soldness of the writer should saway be given. Enquiries relating to patenta, or to the patents-bility of inventions, assignments, etc., will not be published here. A. B. B. B.—B. B	On a Geometrical Problem. By J. D. L.	Designs upon hard surfaces, B. C. Tilghman et al.	174,167
On a Soiar Phenomenon. 13 J. C. On Another Exposion. 13 J. I. T. On Transplanting Trees. 13 C. S. W. C. T.	On the Moon. By J. A. S.	Door closer, J. Stevens	174,165
On Transplanting Trees. By C. B. H. Also inquiries and answers from the following: C. A. W.—R. F. F.—D. L. W.—J. L. R. B.—F. W. W. R.—C. D.—S. H.—A. F.—W. C. L.—E. W. W. R.—C. D.—S. H.—A. F.—W. C. L.—E. W. HINTS TO COURSENONDENTS MINTS TO COURSENONDENTS Orrespondent whose inquiries full to appea, shouldespeat them. If you then published, they may conclude that, for good reasons, the Bittie declines them. The address of the writer should shrays be given. Broughtes whose inquiries of the patients of the	On a Solar Phenomenon. By J. C.	Eaves trough, W. F. Moulten	174,281
C. A. WR. F. FD. I. WJ. L. R. BF. W. RC. DS. HA. FW. C. LR. W. R. W. RC. S. HA. FW. C. LR. W. H. W. R. C. D. S. HA. FW. C. LR. W. H. W. S. H. W. C. L. R. W. H. W. S. H. W. C. L. R. W. H. W. S. H. W. C. W. G.	On Transplanting Trees. By C. E. H.	Electrical switch and cut-out, S. D. Field	174,128
HINTS TO CORRESPONDENTS. Correspondents whose inquiries full to appea, shouldrepeat them. If not then published, they may conclude that, for good reasons, the Editor decimes them. The address of them by the published them is a construction of the published here. All such auestions, when initials of minimum, assignments, etc., will not be published here. All such auestions, when initials only are given, are thrown into the waste based, but you make the published here. All such auestions, when initials only are given, are thrown into the waste based, but you make the published here. All such auestions, when initials only are given, are thrown into the waste based, but you make the waster's address is given. Hundreds of inquiries analogous to the following are sent: "Who sells pattumm, and what is it cost? Who sells machinery for working smull spectral inquiries are printed, as will be observed. [OF FICIAL.] INDEX OF INVENTIONS [10] [OF FICIAL.] INDEX OF INVENTIONS TO WHOTE [Those marked of are retisued pattents.] [OF FICIAL.] Alamn, electric warsh, w. H. Rodgers. 11,111. Alamn, electric warsh, w. H. Rodgers. 11,111. Alamn, electric warsh, w. H. Rodgers. 11,111. Alamn, steetic warsh, w. H. Rodgers. 11,111. Alamn, steetic warsh, w. H. Rodgers. 11,111. Alamn, alamn, w. H. Rodgers. 11,11	C. A. WR. F. FD. L. WJ. L. R. BF. W.	Embalming apparatus, G. T. Parker	174,085
Dorrespondents whose inquiries full to appeal shouldrepeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should away ab early the editors. The address of the writer should away ab early the editors. The editors of the writer should away abe given. The editors of the writer should away abe given. The editors of the writer should away abe given. The editors of the writer should away abe given the editors. The editors of the published here. All such questions, when initial published here. All such questions, when initial published here. All such questions, when initial published here. All such questions is an away from the published here. All such questions are an away from the published here. All such questions are all the published here. All such questions, when initial published here. All such questions, when initial published here. All such questions, when initial published here. All such questions are all the published here. All such questions are all such all such questions are all such and all such are all suc		Engine regulator, electric, S. D. Field	174,127
any conclude that, for good reasons, the Editod decimes them. The address of the writer should always be given. Enguireer relating to patients, or to the patients and the published here. All such questions, when initiate published here. All such questions in an answering breith by main, if the writer's address is given. Hundreds of inquiries analogous to the following the heat of the purpose of the published here. All such questions are also as a second with the purpose and the purpose and the purpose and the purpose and the purpose applications. All the purpose applications of "Business and Personal," while the column of "Business and Personal," while the charge mentioned at the bead of that column. Almost any desired information can in this way be expeditionally obtained. [OF FICIAL.] INDEX OF INVENTIONS [OF FICIAL.] INDEX OF INVENTIONS From the purpose, subbect to the charge mentioned at the bead of that column. Almost any desired information can in this way be expeditionally obtained. [OF FICIAL.] INDEX OF INVENTIONS From the purpose, subbect to the charge mentioned at the bead of that column. Almost any desired information can in this way be expeditionally obtained. [OF FICIAL.] INDEX OF INVENTIONS From the work Ending February 29, 1876, AND EACH BEARING THAT DATE. (Those marked (r) are relaxed patents.] Letters Patent of the United States were Granted in the Week Ending Alarm, electric burglait, W. H. Rodgers. 114,165 Badge, H. H. Show. 144,265 Grant Bearing and the work and the substitution of the purpose, subbect to feel the purpose, substitution of the purpose, substitution of the purpose and the pur	Correspondents whose inquiries fail to appea.	Fareregister, W. H. Hornum Feed cutter, E. R. Hall	174,246 174,235
always be given. Enquiriers eluting to patients, or to the patents Enquiriers eluting to patients, or to the patents Enquiriers eluting to patients, or to the patents of the patents of the patents of the patients of the patents of the patients of the pa	may conclude that, for good reasons, the Editor	Fence p st, E Powell	174,296
published here. All such questions, when initials pouly are given, are thrown into the waste basket, as it would fill half of our paper to print them all but we generally take pleasure in answering brefly by main if the writer's address is given. I are the best boller for generating steam to heat ward makes brass estings? Who makes cider milit that grind and press at one operation? Whose is the best boller for generating steam to heat ward is the best boller for generating steam to heat ward is the best boller for generating steam to heat ward is the best boller for generating steam to heat ward is the best boller for generating steam to heat ward is the best boller for generating steam to heat ward is the best boller for generating steam to heat ward is the best boller for generating steam to heat ward is the best boller for generating steam to heat ward is the best boller for generating steam to heat ward is the best boller of working small screw propeliers by hand power. All and the best boller of the	Enquiries relating to patents, or to the patenta-	Filtering apparatus, L. Prange Fireman's suit, J. W. Ostberg	174,297 174,286
as it would fill half of our paper to print them all; but we generally take pleasure in answering brit we generally take pleasure in answering brit we generally take pleasure in answering brit of the print of the	published here. All such questions, when initials	Fruit jar stopper, W. Vom Hofe	174,327
by mail, if the writer's address is given. Hundreds of inquiries analogous to the following are sent: "Who sells muchines for recutting hand saws? Who sells muchines for recutting hand saws? Who sells pure bred poultry?" who makes brass castings? Who makes cider mills that grind and press at one operation? Whose makes to be best bolier for generating steam to heat water cost? Who sells machiner for working mails steb best bolier for generating steam to heat water cost? Who sells machiner for working mail screw propellers by hand power?" All such personal inquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subled, to the charge mentioned at the head of that column Almost any desired information can in this wyb be expeditiously obtained. [OF FICIAL.] INDEX OF INVENTIONS [OF FICIAL.] INDEX OF INVENTIONS Letters Patent of the United States were Granted in the Week Ending February 29, 1876, AND EACH BEARING THAT DATE. [Those marked (70 are reissaed patents.] Alarm, electric fore, W. Gates. 114,105 Baking sprishing stachment, A. Rannie 114,105 Back ttd, D. J. Makhas. 1909. 114,107 Beating and the state of the column of the st	as it would fill half of our paper to print them all;	Furnace, metallurgic, J. Williams	174,100
are sent: "Who sells muchines for recuture, and asways who sells puts pred poutry." Who shands aways who sells platformer to the predict of the control of t	by mail, if the writer's address is given.	Furniture, etc, joint for, T. L. Luders	174,266
that grind and press at one operation? Whose is the best bottle for generating steam to heat water in a tank? Who sells platinum, and what is its cost? Who sells machinery for working small screw propellers by hand power?" All such proronal inquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained. [OFFICIAL.] INDEX OF INVENTIONS FOR INVENTIONS FOR INVENTIONS FOR WHIGH THE PRINTED STATES FOR WHICH THE PRINTED ST	hand saws? Who sells pure bred poultry? Who	Gage, recording steam, J. B. Edson	174,125
in a tank? Who sells platinum, and what is its sors? Who sells machinery for working small screw propellers by hand power?" All such personal inquiries are printed, as will be observed, at the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained. [OF FICIAL.] [OF FICIAL.] INDEX OF INVENTIONS prox winor [OF FICIAL.]	that grind and press at one operation? Whose is	Gate, D. H. Kime	174,259
	in a tank? Who sells platinum, and what is its	Gate, farm, W. Hullett	174,249
in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained. [OF FICIAL.] INDEX OF INVENTIONS INDEX OF INVENTIONS Letters Patent of the United States were Granted in the Week Ending February 29, 1876, And Back Back Back Back Back Back Back Back	screw propellers by hand power?" All such	Governor, B. W. Johnson	174,254 174,225
Grant Gran	in the column of "Business and Personal," which is specially set apart for that purpose, subject to	Graincleaner, E. W. Johnson	174,253
COFFICIAL.	Almost any desired information can in this way	Grain drills, teeth for, A. H. Dixon	174,067
Harness Agol. Eastman	be expeditionally obtained.	Gun, machine, W. Gardner	174,130
Harrow, convertible rotary, T. Woodward, 174,195	[OFFICIAL.]	Harness, O. C. Eastman	174,124
## Carnted In the Week Ending February 29, 1876, AND EacH BEARING THAT DATE. [Those marked (r) are reissued patents.] Alarm, electric burglar, W. H. Rodgers. 174,550 Alarm, electric fire, W. Gates. 174,070 Alarm, electric fire, W. Gates. 174,070 Alarm, electric fire, W. Gates. 174,070 Baking spinkling attachment, A. Rannie. 174,080 Baking spinkling attachment, A. Rannie. 174,080 Baking spinkling attachment, A. Rannie. 174,080 Balie tle, J. A. Bostwick 174,105 Balie tle, D. H. Mathias. 174,082 Balie tle, D. H. Mathias. 174,082 Balie tle, D. H. Mathias. 174,082 Berrisg, anti-friction, A. G. White. 174,381 Beel bottom, F. P. Carter. 174,082 Bed bottom, F. P. Carter. 174,082 Bed bottom, F. P. Carter. 174,083 Bell idoor, H. A. Dierices. 174,105 Bell door, H. A. Dierices. 174,205 Bell door, H. A. Dierices. 174,205 Bell door, H. A. Dierices. 174,207 Billiard table, J. Peck. 174,151 Book rack, C. F. Kunhle. W. F. Feer. 174,187 Book rack, C. F. Kunhle. 174,288 Boot-negsing machiae, N. B. Dit Lepine. 174,086 Boot tong machiae, N. B. Dit Lepine. 174,086 Boot sand trunk, combined life, W. E. Face. 174,175 Boot self, G. F. Kunhle. 174,288 Boot-negsing machiae, N. B. Dit Lepine. 174,086 Boot sand trunk, combined life, W. E. Face. 174,175 Boot heels, solphing, E. Taylor. 174,087 Boot self, G. F. Kunhle. 174,288 Boot-negsing machiae, N. B. Dit Lepine. 174,086 Boot sand trunk, combined life, W. E. Face. 174,175 Boot self, G. F. Kunhle. 174,288 Boot-negsing machiae, N. B. Dit Lepine. 174,086 Boot sand trunk, combined life, W. E. Face. 174,175 Boot self, G. F. Kunhle. 174,288 Boot-negsing machiae, N. B. Dit Lepine. 174,086 Boot sand trunk, combined life, W. E. Face. 174,175 Boot self, G. F. Kunhle. 174,288 Boot-negsing machiae, N. B. Dit Lepine. 174,068 Bridge gate, dee, E. S. Perry. 174,068 Bridge gate, C. E. Runhle. 174,176 Bridge gate, C. E. White. 174,176 Bridge ctruss, S. Conklin. 174,176 Bridge gate, C. E. White. 174,176 Bridge gate, C. E. White. 174,176 Bridge gate, C. E. White. 174,176 Bridge gate, C. E. Bridges. 174,17		Harrow, convertible rotary, T. Woodward	. 174,387
Rebruary 29, 1876, Harvester. rake, P. S. Burditt. 174,198	Letters Patent of the United States were	Harvester, J. Werner, Jr	. 174,380
Alarm, electric burglar, W. H. Rodgers. 174,157		Harvester, rake, P. S. Burditt	. 174,189 . 174, 9 94
Hydrant, G. C. Baley		Hog cholera, remedy for, E. Royalty	. 174,157
Alarm, electric fire, W. Gates. 174,070 Alarm, electric fire, W. Gates. 174,070 Auger, earth, A. W. Morgan. 174,162 Baking sprinkling attachment, A. Rannie. 174,162 Baking sprinkling attachment, A. Rannie. 174,105 Bale tie, J. R. and H. A. R. Horton. 174,271 Bale tie, J. R. and H. A. R. Horton. 174,275 Bale tie, J. R. and H. A. R. Horton. 174,287 Bale tie, J. R. and H. A. R. Horton. 174,287 Bale tie, J. R. and H. A. R. Horton. 174,287 Bale tie, J. H. Mathias. 174,082 Barris, finishing, E. W. Giliman. 174,282 Barris, finishing, E. W. Giliman. 174,282 Bearing, and-irriction, A. G. White. 174,381 Bed bottom, F. C. Lard. 174,482 Bed bottom, P. C. Hard 174,286 Bed bottom, P. C. Hard 174,286 Bed bottom, P. C. Hard 174,286 Bed bottom, Spring, J. E. Lord. 174,480 Bedistead, folding, F. M. Kibbey. 174,371 Bedistead, folding, F. M. Kibbey. 174,375 Beli. door, H. A. Dierkes. 174,210 Bedistead, folding, F. M. Kibbey. 174,375 Belaching extractor hemiock bark, E. Bradley 174,176 Beaching extractor hemiock bark, E. Bradley 174,110 Book rack, C. F. Kuhnie. 174,281 Boot heels, shaping, R. Taylor. 174,282 Boot heels, polishing, L. Graf. 174,281 Boot heels, shaping, R. Taylor. 174,282 Boot sample holder, J. D. Bridendolph 174,111 Boot sole plate, etc., E. S. Perry 174,085 Boot sample holder, J. D. Bridendolph 174,111 Boot sole plate, etc., E. S. Perry 174,085 Boot sufferers, making, W. N. Sprague 174,681 Boot sole plate, etc., E. S. Perry 174,085 Boot sufferers, making, W. N. Sprague 174,686 Boot sufferers, Ma		Hydrant, G. C. Bailey	. 174,181 . 174,240
Baking sprinkling attachment, A. Rannie 174,300 Baie tie, J. R. and H. A. R. Horton 174,327 Baie tie, J. R. and H. A. R. Horton 174,327 Baie tie, D. H. Mathias 174,022 Barreis, finishing, E. W. Gillman 174,228 Barreis, finishing, E. W. Gillman 174,228 Bearling, anti-friction, A. G. White 174,331 Bed bottom, E. P. Carter 174,026 Bed bottom, P. C. Hard 174,236 Bell door, H. A. Dierkes 174,137 Bell door, H. A. Dierkes 174,137 Bell door, H. A. Dierkes 174,237 Bell door, H. A. Dierkes 174,237 Bill dard table, J. Peck 174,151 Block combination, J. McCaskey 174,337 Block combination, J. McCaskey 174,338 Bloder, culiarry, C. M. Garber 174,236 Boder, culiarry, C. M. Garber 174,236 Boot bels, polishing, L. Graf 174,236 Boot bels, polishing, L. Graf 174,236 Boot bels, shaping, R. Taylor 174,066 Boot shank support, J. S. Nelson 174,238 Boot sample holder, J. D. Briedadolph 174,111 Boot sample holder, J. D. Sriedadolph 174,111 Boot sample holder, J. D. Sriedadolph 174,111 Boot sample holder, J. D. Sriedadolph 174,128 Boot spank support, J. S. Nelson 174,288 Boot small support, J. S. Nelson 174,288 Button, J. R. Smith 174,129 174,268 Boot small support, J. S. Nelson 174,288 Button, J. R. Smith 174,129 174,268 Boot small support, J. S. Nelson 174,288 Button, J. R. Smith 174,171 174,288 Button, J. R. Smith 174,172 174,288 Button, J. R. Smith 174,173 174,286 Button, J. R. Smith 174,174 174,175 Can nozzle, oil, R. H. Hasenritter 174,175 Can nozzle, oil, R. H. Hasenritter 174,175 Can nozzle, oil, R. H. Hasenritter 17	Alarm, electric fire, W. Gates	Ironing apparatus, G. W. Cottingham	. 174,200
Bale tie, J. H. and H. A. R. Horton	Baking sprinkling attachment, A. Rannie 174,300	Kettle, steam, S. W. Chamberlin	. 174,154
Bearing anti-friction, A. G. White	Bale tie, J. R. and H. A. R. Horton	Knife, pocket and draw, J. W. Peirce Knife-scouring box, S. M. Button	. 174,191
Bed bottom, P. C. Hard	Bearing, anti-friction, A. G. White 174,331	Lamps, gas lighter for street, J. Chapman	. 174,193
Bell door, H. A. Dierkes. 174,210 Lock, combination, J. McCaskey. 174,228 Billiard table, J. Peck. 174,151 Lock, combination seai, H. Clarke (r). 6,558 Bird cage, F. J. Meyers 174,172 Lock, door, M. Light. 174,284 Bieaching extract or hemiock bark, E. Bradley. 174,110 Lock, door, M. Light. 174,285 Botler. culinary, C. M. Garber. 174,224 Lock for drawers, etc., L. L. Bates. 174,382 Lockomotive, W. S. Hudson (r). 6,550 Meat chopper, J. D. Adt. 174,474 Boot backs, C. F. Kuhnle. 174,282 Locomotive firebox, G. W. Tilton. 174,077 Meat chopper, J. D. Adt. 174,174 Boot backs, shaping, R. Taylor. 174,086 Boot shank support, J. S. Nelson. 174,288 Boot heels, shaping, R. Taylor. 174,086 Boot shank support, J. S. Nelson. 174,288 Boot shank support, J. D. Bridendolph. 174,111 Boot sole plate, etc., E. S. Perry. 174,280 Moccasin, S. T. Hutchins. 174,077 Mortising and tenoning machine, G. Benjamin. 174,188 Box. W. Von Darteln. 174,288 Box. W. Von Darteln. 174,288 Box. W. Von Darteln. 174,286 Bowless, C. F. Martin, Jr. 174,286 Bourner, lamp. W. H. Parr. 174,287 Bridge gate, draw, J. Schwennesen. 174,387 Bridge gate, draw, J. Schwennesen. 174,387 Bridge, truss, S. Conklin. 174,120 Broller, F. Martin, Jr. 174,288 Burner, lamp. W. H. Parr. 174,288 Burner, lamp. W. H. Parr. 174,288 Can, sheet metal, D. Steiner. 174,386 Car axle box, C. H. Cox. 174,381 Car coupling, C. H. Briggs. 174,187 Car coupling, J. C. Gentry. 174,072 Car coupling, J. C. Gentry. 174,072 Car coupling, J. S. Purnell. 174,289 Car coupling, J. A. Vogler. 174,289 Planter, corn, J. V. Reams. 174,280 Planter, corn, J. V. Ream	Bed bottom, P. C. Hard 174.236 Bed bottom, spring, J. E. Lord 174,080	Letter box, F. D. BennettLife preserver, F. M. English	. 174,217
Bird cage, F. J. Meyers	Bell. door, H. A. Dierkes	Lock, combination, J. McCaskey	. 174,273
Botler. culinary, C. M. Garber	Bird cage, F. J. Meyers	Lock, door, M. Light	. 174,182
Boot counter stiffener. etc., J. J. Adgate 174,174	Boiler, culinary, C. M. Garber	Locomotive firebox, G. W. Tilton	. 174,097
Boot pegging machine, N. B. Dit Lepine. 174,066	Boot counter stiffener. etc., J. J. Adgate 174,174 Boot heels, polishing, L. Graf 174,231	Meats, etc., preserving, H. Gaullieur Mechanical movement, T. O. Perry	. 174,071 . 174,088
Boot stiffeners, making, W. N. Sprague. 174,164	Boot-pegging machine, N. B. Dit Lepine 174,066	Mill, quartz, S. H. Cowles	. 174,202
Bottle corking machine, F. J. Berry 174,058	Boot stiffeners, making, W. N. Sprague 174,164	Moccasin, S. T. Hutchins	. 174,077
Box. W. Von Dartein. 174,328	Bottle corking machine, F. J. Berry 174,058	Nail plate feeder, B. F. Rice (r)	6,970
Bridge, truss, S. Conklin.	Box, W. Von Darteln	Nut lock, J. J. Adgate	. 174,175
Button, J. R. Smith	Bridge, truss, S. Conklin. 174,120 Broiler, F. Martin, Jr 174,268	Organ bellows, reed, A. DaytonOrgan bellows, seed, L. K. Fuller	. 174,207 . 174,228
Can opener, J. S. Dunlap 174,123 Can, sheet metal, D. Steiner 174,316 Can, sheet metal, W. A. Wicks 174,336 Can nozzle, oil, F. W. Wiesebrock 174,383 Car axle box, C. H. Cox 174,384 Car axle box, Robinett, Brown, and Pickett 174,394 Car coupling, C. H. Briggs 174,187 Car coupling, A. H. Clark 174,167 Car coupling, J. C. Gentry 174,126 Car coupling, W. G. Hawley 174,138 Car coupling, J. S. Purnell 174,295 Car coupling, J. A. Vogler 174,295 Car coupling, J. R. Wopler 174,295 Car coupling, J. R. Wopler 174,295 Car, feeding stock, J. R. McPherson (r) 6,353 Planter, seed, Hilyard and Hohimer 174,133	Button, J. R. Smith	Packing piston, W. W. St. John	174,317
Can, sheet metal, W. A. Wicks	Can opener, J. S. Dunlap	Pan, baking, B. P. Foster	. 174,222 . 174,332
Car axle box, Robinett, Brown, and Pickett 174,306 Car coupling, C. H. Briggs 174,187 Planos, trussed standard for, E. Oakley 174,287 Car coupling, J. C. Gentry 174,072 Pick, W. L. Cousland 174,072 Car coupling, W. G. Hawley 174,183 Car coupling, W. G. Hawley 174,183 Car coupling, J. S. Purnell 174,285 Planter, corn, C. A. Andersson 174,174 Planter, corn, C. A. Andersson 174,175 Car, feeding stock, J. R. McPherson (r) 6,553 Planter, corn, J. V. Reams 174,304 Planter, seed, Hilyard and Hohimer 174,134 Planter, seed, Hilyard and Ho	Can, sheet metal, W. A. Wicks	Paper-cutting machine, Coffin and Morse	. 6,965
Car coupling, A. H. Clark	Car axle box, Robinett, Brown, and Pickett 174,306	Piano lid support, J. B. Shaw	. 174,310
Car coupling, J. S. Purnell 174,299 Planter, corn, C. A. Andersson 174,179 Car coupling, J. A. Vogler 174,326 Planter, corn, J. V. Reams 174,301 Car, feeding stock, J. R. McPherson (r) 6,953 Planter, seed, Hilyard and Hohlmer 174,134	Car coupling, A. H. Clark. 174,116 Car coupling, J. C. Gentry. 174,072	Pick, W. L. Cousland	. 174,201 . 6,951
Car, feeding stock, J. R. McPherson (r) 6,953 Planter, seed, Hilyard and Hohimer	Car coupling, J. S. Purnell	Planter, corn, C. A. Andersson	. 174,179
	Car, feeding stock, J. R. McPherson (r) 6,953	Planter, seed, Hilyard and Hohimer	. 174,134