DEVICE FOR ATTACHING HOOKS, ETC., TO STRAPS. -HERMAN D. DETERT, Faribault, Minn. The device consists of a box casing designed to receive a strap having a longitudinal slot down the center of one side and several holes in the center of the other. A metal tongue with pegs on it a proper distance apart is placed beside the strap with its pegs through the holes in the latter, and the tongue and strap are then slipped into the receiving box. The tongue is grooved on the sides in order to be held firmly on the slotted side of the box, and its pegs project through into the holes on the oppo site side, thus holding the strap securely. A hook is fastened to the box piece so as to fasten it to the breast

PENHOLDER .- WILLIAM THURMAN, Denton, Tex. The penholder consists of a hollow barrel with a telescopic upper end formed of two telescopic sections, the larger one of which contains a spring placed between the end of the smaller section and the end of a plunger movable in the main barrel and carrying the pen in its lower end. By this arrangement freedom of movement to the thumb and fingers is secured, and cramping of the hand is avoided.

NAIL.-BERNHARD SCHNITZLER, 10 to 14 Bleecker Street, New York, N. Y. The invention is a T-shaped lath nail, in which the head of the T is about half the length of the shank and slightly curved, so that if the nail is driven in at an angle, there will be no sharp cor ners of the head projecting.

FISH-SCREEN FOR ARTIFICIAL WATERWAYS. -George D. Bird, Gunnison, Col. A cylinder covered with wire gauze is placed across the fiume and is turned by a paddle wheel to which it is connected by a chain. A board is fastened to the bottom of the fiume with its upper edge fitting tightly against the cylinder, so that fish are stopped from going any farther, while leaves or debris are carried over by the revolving cylinder.

PNEUMATIC PROPULSION MEANS.-James C. WALKER, White Cliff Springs, Tenn. The propeller shaft is made hollow to be used as an air tube. The jet of air passes through the propeller shaft, and the air thus discharged will fill any space which may be created directly at the rear of the propeller blades.

STORAGE BATTERY .- CHARLES and HARRY LIN-DENBERGER and WILLIAM B. TEAL, care Lindenberger, Teal & Co., 354 Century Building, St. Louis, Mo. The invention consists of an improved batterycell or box made of hard rubber. A perforated partition is placed inside the cell, which is a low, flat box, and a small space is left between the partition and walls of the cell in which to place the electrolyte. The active material is placed inside the center space in the form of blocks which are pressed into contact with lead plates extending along the top and bottom of the cell. The blocks which form the positive and negative plates are separated by a layer of charcoal wrapped in asbestos paper. The ease with which these blocks can be renewed constitutes the main feature of the battery.

THREAD CUTTER.-BERT NEWSOME, Minonk, Ill. This device consists of a circular spring ring to slip over the finger. Pivoted in trunnions on one end of the ring is a short cutter blade which is sprung outward by a slight pressure of the finger in order to be used for cutting thread.

Designs.

DESIGN FOR A SAW-BLADE.-DOUGALD MCEA-CHERN, Erie, Canada. The teeth of the blade are very nearly the shape of a boot with a sloping leg portion, and the alternate teeth are tapered on their opposite sides, gradually becoming thinner near their rear ends.

DESIGN FOR A BUFFER-SPRING.-ZERAH H. TATE, Erlanger, Ky. The shape of the spring resembles somewhat a pair of tongs, one prong being bent outward and then parallel with the other and having a rectangular plate fastened to it at the end and the other being slightly curved and having a hole near its outer end.

DESIGN FOR A TICKET BLANK.-FERDINAND KRONENBERGER, 1147 Tinton Avenue, New York, N. Y. The design consists of a rectangular blank having perforated lines extending diagonally across its four corners. 'The four rows of perforations practically form a square, and arranged within this square is an outline rectangular panel, in the center of which is a circular row of perforations.

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

NEW BOOKS, ETC.

ENGINE ROOM PRACTICE. A Hand Book for Young Marine Engineers. John G. Liversidge, Chief Engineer R. N. London: Charles Griffin & Company. Philadelphia: J. B. Lippincott Company. 1899. Pp. 292. 12mo. Price \$2.50.

The volume before us impresses us as being a really practical book on marine steam engineering. It is filled with valuable information and hints which will probably not come amiss to even the engineer who has actual charge of a marine engine. The diagrams are most of them clear and significant. The tables are also valuable. Although the book is written by an Englishman and is devoted to English practice, at the same time marine engineering is very much the same in vessels of all nationalities.

Vorschriften für die Berechnung der Eisernen Brücken der DER EISERNEN BRÜCKEN DER PREUSSISCHEN STAATSKISENBAHN-VERWALTUNG, Hierzu 4 Textabbildungen und 1 Tafel in Steinstich. Mit Einem Anhange vom Eisenbahn-Bauinspector John Labes über die Bestimmung Grösster Momente und Querkräfte für Eisenbahn-Balkenbrücken und die Berechbung der Querträger von Eisenbahnbalkenbrücken. Hierzu 14 Textabbildungen. Berlin: Wilhelm Ernst und Sohn. Price 30 cents. DER

Business and Personal.

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

Marine Iron Works. Chicago. Catalogue free. "U. S." Metal Polish. Indianapolis. Samples free. Gasoline Brazing Forge, Turner Brass Works, Chicago Yankee Notions. Waterbury Button Co., Waterb'y, Ct Hook and Eye Patent for Sale. F. J. Rappold, Erie, Pa Handle & Spoke Mchy. Ober Mfg. Co., Chagrin Falls, O Machine Work of every description. Jobbing and re pairing. The Garvin Machine Co., 141 Varick St., N. Y. Ferracute Machine Co., Bridgeton, N. J., U.S. A., Ful line of Presses, Dies, and other Sheet Metal Machinery "Criterion" Acetylene Generators, Magic Lanterns & accessories. J. B. Colt & Co., Dept. N, 3-7 W. 29th St., N.Y The celebrated "Hornsby-Akroyd" Patent Safety Oi Engine is built by the De La Vergne Refrigerating Machine Company. Foct of East 138th Street, New York.

tricity is "Experimental Science," by Geo. M. Hopkins By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway New York. Free on application.

The best book for electricians and beginners in elec-



HINTS 'TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication. References to former articles or answers should

References to former articles or answers should give date of paper and page or number of question.
Inquiries not answered in 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 letter or in this department, each must take his turn.
Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Winerals sent for examination should be distinctly marked or labeled.

(7709) P. H. L. writes: A trolley car is running on wire notches and the overhead wire become he negative and the track positive; what result to the car or motors? I claim the car will run ahead as before The other gentleman claims it will reverse and run back ward. By deciding this argument you will greatly oblige A. Reversing the current on the line has no effect of the motor. To reverse the motor, the current must be reversed either in the armature or in the field magnet but not in both. The motorman does this when he back the car.

(7710) W. B. writes: At what longitu dinal point does Sunday begin? A. Sunday like all the days of the week begins at midnight following the pre ceding day, at the meridian of 180 degrees east or wes of the meridian of Greenwich, England. The line is in the Pacific Ocean, running from Behring Straits west o the Aleutian Islands and the Hawaiian group and eas from New Zealand.

TO INVENTORS

An experience of fifty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequaled facilities for procuring patents everywhere A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business, Address MUNN & Co., office Scientific American, 631Br oadway. New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

AUGUST 8, 1899,

AND EACH BEARING THAT DATE

[See note at end of list about copies of these patents. Acid by electrolysis, producing chromic, Le Blanc & Reisenegger 630.61

ı	Advertising means, A. L. E. Caspar	630,486
ı	Aerating apparatus, liquid, H. Hirzel	630,506
ı	Air brake operating apparatus, W. B. Mann,	630,376
١	Air brake operating apparatus, W. B. Mann.	
١	630 381	630 382
ı	Air compressor, R. L. Dunn	630,495
1	Andiron, grate, and fender, combined, Hickson	000,400
ı		630,695
ı	& Wood	
1	Animal trap, G. U. Hall	630,346
1	Anvil. D. Buel	630.323
	Anvil. D. Buel. Arc rupturing device, E. J. Berg	630,318
	Autographic register, Egry & Schirmer	630,601
1	Atomizer, C. O. & E. E. Billow	630.32€
1	Automatic lubricator, J. H. Piburn	630.405
	Axle and reach for vehicles, rear, G. F. Thomp-	,
1		630.425
1	Back pedaling brake, E. M. Wildey	630,431
1	Badge, A. H. & G. B. Adams	630,579
	Badge, Liebmann & Toussaint	630,547
	Dauge, Lieumann & Toussaint	090,941
	Bag. See Mail bag.	000 004
	Bag holder, H. C. Goldsmith	630,684
	Bail, J. B. Mowry	630,393
	Bale fastenings, winding tool for. D. M. Camp-	
	bell	630.825
	Bale supporting device, G. A. Lowry	630,372
	Bale supporting device for presses, G. A. Lowry.	
	630,371,	630.373
	Battery. See Storage battery.	-00,010
	Bearing, axle, I. Osgood	630,556
	Bearing, end thrust, V. Belanger	620,581
	Bearings, means for supporting, S. C. Davidson	630,529
	Bedstead, folding or collapsible, J. Russell	630,744
		630,744
	Beehive. J. Hartman	
١	Beet puller, I. Goble	630,535
	Bicycle, C. S. Ambruster	630.436
	Bicycle, C. S. Ambruster Bicycle, L. De Rango (reissue)	11,764
	Bicycle grid F. A. Briggs	620 640
	Bicycle ped als, removable toe clip for, T. J. Rush	630,743
١	Binder, H. E. Dade	630,668
	Bit. See Bridle bit.	,
	Div. Doc Dilaio Div.	

	zmerran.		
1	Blow off protector, E. Mather	630,386	Fi
	Boiler. See Steam boiler. Boiler flue cleaning device, G. C. Kitchen	630,545	Fi
1	Boot lock shading device, J. D. Roche	630,570 630,564	F
	Bottle, non-refillable, S. Penny. Bottles, machine for filling screw stoppered, Adcock & Lyle	630,737	F
1	Boiler. See Steam boiler. Boiler flue cleaning device, G. C. Kitchen. Bot lock, sliding, C. B. Conant. Boot or shoe, J. F. Sharpe. Bottle closing device, J. D. Roche. Bottle, non-refillable, S. Penny. Bottles, machine for filling screw stoppered, Adcock & Lyle. Bowling alley, McIntire & Holden. Box. See File box. Paper box. Toy money box.	630,734 630,728	FF
	box. Box machine, C. H. Bump.	630,528	F
	Box machine, C. H. Bump Box machine, G. Patureau. Brake. See Air brake. Back pedaling brake. Ve- hicle brake. Wagon brake.		F
	hicle brake. Wagon brake. Brake, W. D. Ross. Brake, W. Wirtz. Brick making, A. Niedringhaus. Bridge, W. A. Gunn. Bridde, W. A. Gunn. Bridde bit, A. M. Pendleton. Bronzing apparatus, V. Bauer. Brush, bottle washing, M. Kaefer. Brush handle. E. W. Durant. Buffer, stationary, F. Westmeyer. Burgar sunshade, F. Geiger. Burlal apparatus, R. R. Kinney. Burner. See Cactus burner. Gas, burner. Hydrocarbon burner. Oil burner. Button for cushion seats, tufting, F. A. Neider.	630.742 630.434 630.397	F
	Bridge, W. A. Gunn. Bridge bit, A. M. Pendleton.	630,809 630,515 630,440	G
	Brush, bottle washing, M. Kaefer. Brush handle, E. W. Durant.	630.6 0 9 630,6 00	G
ı	Burgy sunshade, F. Geiger Burial apparatus, R. R. Kinney	630,577 630,497 630,459	GGG
	Burner. See Cactus burner. Gas burner. Hy- drocarbon burner. Oil burner. Button for cushion seats, tufting, F. A. Neider	630 553	G G
	Button makingmachinery, R. H. Beck. Cable coupling, E. S. Decker. Cactus burner, Beever & McCoy. Can. See Guarded can. •il can. Water can.	630,645 630,806	G
	Can. See Guarded can. eil can. Water can. Canal, sbip, A. Hogeland	630,457	GG
	Candle holder for Christmas trees, H. Stolze, Jr. Candy cleaning machine, W. S. Foster	630.423 650,336 630.707	G G
	Car coupling, J. J. Caton. Car coupling, railway, L. M. Orosz	630,655 630,817	GGG
	Car for coke, self dumping, J. M. Maris. Car heating system, J. F. McElroy.	630,385 630,627	G
	Car, railway, J. Nasb. Car side bearing, railway, S. D. King Car step, extension, Wrede & Saunders	630,552 630,358 630,764	G
	Carding machine, S. Beran Carriage washing and automatic water level regulating device, combined W. H. Bawe	630,479	G G
Ì	Candy cleaning machine, W. S. Foster. Cap. N. Jacobson	630,716	GG
	Case. See Convertible case. Pipe case. Syringe	630,453	GGG
	case. Caster, Higgins & Oneil Cattle guard, R. C. Cummings Cattle guard gate, automatic, C. W. Hılls		GG
	Cattle guard gate, automatic, C. W. Hills	630,608 630,727 630,736	H
	Chair See Revolving chair	630,833	H
	Chair. See Revolving chair. Chest. See Flour chest. Churn, J. E. Benjamin	630,768	H
	anism for I. H Nutting	630 398	H
1	Cigar bunch making machine, E. Pisko	630,534	H
,	Venners. Circuit breaker, automatic, E. M. Hewlett	630,786 630,539	H
	Venners. Circuit breaker, automatic, E. M. Hewlett. Clamp. See Colter clamp. Pipe clamp. Clamp for pipes, shafts, etc., C. B. Albree. Clasp. See Garment clasp. Clothes rack, W. Wildermuth. Clutch, friction, E. V. Faucett. Coffee pot, J. K. Cummings. Coffee pot, J. A. Wilmot. Colter, A. C. Gavjord.	630,641	H
	Clothes rack, W. Wildermuth. Clutch, friction, E. V. Faucett Coffee pot, J. K. Cummings.	630,430 630,532 630,666	H
	Coffee pot, J. A. Wilmot. Colter, A. C. Gaylord. Colter clamp. A. C. Gaylord.	630,761 630,680 630,670	H
	Colter, A. C. Gaylord		H
	Stephens. Conduit or pipe, H. M. & H. A. Gordon. Convertible case, E. M. Turner. Conveyer, E. S. Decker	630,420 630,605 630,427	H
	Conveyer, E. S. Decker	630,804 630,799 630,803	li li J
	Conveyer, en dless. T. O. Terhune	630,800 630,805 630,414	K
	Cooler. See Centrifugal Cooler. Liquid Cooler.	547	K
	Corset fastener, S. R. Mills. Cotton, etc., apparatus for compressing, G. A. Lowry. Cotton, wool, etc., press for, G. A. Lowry. Cotton, wool, hair, etc., press for, G. A. Lowry. Couch and bath tub, combined, S. J. Smith. Counting and detecting apparatus, F. L. Wilder. Coupling. See Cable coupling. Car coupling. Pilot coupling. Shaft coupling. Yoke harness coupling.	630,369 630,370	K
	Couton, wool, hair, etc., press for, G. A. Lowry Couch and bath tub, combined, S. J. Smith Counting and detecting apparatus. F. L. Wilder.	630,368 630,416 630,578	L
	Coupling. See Cable coupling. Car coupling. Pilot coupling. Shaft coupling. Yoke har- ness coupling.	,_,,	I.
	Cover and detachable pad, H. S. King Crusher. See Rock crusher. Cultivator, A. Wilkinson Current motor, alternating, M. Deri Current motor, alternating, C. P. Steinmetz	630,717	F
	Current motor, alternating, M. Deri	630,489 630,419	Į.
	nating and continuous, M. Deri	630.491	L
	Curtain pole, M. A. Harter. Cutter. See Cigar tip cutter. Thread cutter. Cutter head, trapezoidal, S. J. Shimer. Cycles, attaching inflating pumps to, R. Reid.	630,348	L
	Cycles, attaching inflating pumps to, R. Reid	630,561	L
	Cylinder headed. W.E. Hill. Desk lid support. E. F. & F. D. Pooley. Dies, forming. H. F. Blackwell, Jr. Digger. See Post hole digger. Disuffecting by means of formaldehyde, A.	630,739 630,771	L
	Disinfecting by means of formaldehyde, A. Schmidt Disk drill. W. F. Hoyt	630,782 630,353	i. L
	Disk dvill, W. F. Hoyt. Door binder, S. H. Kingsiand. Door check, S. Wilson Door fastening, sliding, M. E. Kanaly Door hanger and track, R. Oliver Dough board, E. Sargent, Jr. Draught equalizer, J. Kramer. Prawer, furniture. Bankmann & Gebhard Drawing and doubling machine, lap. J. T. Meats Drill. See Disk drill. Pneumatic drill. Dropper. See Seed dropper. Drying kiln, F. R. Morris	630.811	M
	Door hanger and track, R. Oliver	630,733 630,746	M
	Drawer, furniture, Bankmann & Gebhard. Drawing and doubling machine, lan. J. T. Mesis	630,362 630,314 630,813	M M
1	Drill. See Disk drill. Pneumatic drill. Dropper. See Seed dropper. Drying kiln, F. R. Morris	630.399	M
	Dumb bell, J. Robinson	630,741	M
	Egg tester. W. Upton Electric cables, machine for making armored, E.	630,820	M M
	T. Greenfield Electric cables or wires, protective casing for, Douglas & Sundh	630,502 630,599	M
	Electric cables or wires, protective casing for, A.		N
	Sundh	630,503	N
	M. Deri	630,49 0 630,409	0
	Electric machines, arrangement for exciting magnets of dynamo, M. Deri	630,492 630,333	P
	Marshall	630,618	P
	Electric wires, metallic conduit for, E. T. Green-	630,501	P
	Electrical conducting main, Highfield & Cater Electrically driven spindle, Sawyer & Robb Elevator, W. F. Smith	630,567 630,417	P
	field Electrical conducting main, Highfield & Cater Electrically driven spindle, Sawyer & Robb. Elevator, W. F. Smith Elevator, H. R. Tracy Elevator safety device, Terry & Grissom Embossing machine die plate, J. Eberhard. End gate, wagon, J. W. Brubaker. Engine. See Gas or vapor engine. Locomotive engine. Pump engine. Reciprocating engine. Rotary engine.	630,473 630,424 630,672	P
	End gate, wagon, J. W. Brubaker. Engine. See Gas or vapor engine. Locomotive	630,672 630,651	P
	Engine igniter gas Morse & Hobert	630 624	P
	Engraving machine, M. Kruse. Engraving machine, M. B. Brown. Exhibiting stand for price lists, W. N. Stephan. Fabric, R. R. Smith Fabric turfing and embroidering machine, J.	630,546 620,774 630,755	P
	Fabric, R. R. Smith. Fabric turfing and embroidering machine, J.	630,573	P
3	Fasteners, tool for setting, R. C. Annand	630,476	F
9	Grueninger. Faucet, automatic, P. Barclay. Felly trough, F. S. Briggs. Fence, combined hedge and wire, L. W. Young Fence device wire, C. A. Burnham.	630,808 630,315 630,481	P
3	Fence, combined hedge and wire, L. W. Young. Fence device, wire, C. A. Burnham. Fences, device for making wire W. McClostov.	630,640 630,653 630,465	F
1	Feuce device, wire, C. A. Burnham, Fences device, wire, C. A. Burnham, Fences, device for making wire, W. McCloskey, Fencing, etc., machine for spooling and taking up wire for, J. W. Sanderson. Vender. See Car fender. Fibrous or other material, apparatus for compressing, G. A. Lowry. File, H. W. Conard. File box, cashier's, J. T. Hicks.	630,745	H
8	Fibrous or other material, apparatus for compressing, G. A. Lowry.	630,374	P
3	File box, cashier's, J. T. Hicks.	630, 50 5	P

6	Filter, heater, and cooler, water, E. S. Clower	630.327
۱	Filter, heater, and cooler, water, E. S. Clower Fire alarm system, automatic, G. C. Hale Firearm, B. Behr	631.478
54	Firearm, W. J. Turnbull. Fire escape, T. C. H. Vance. Fire hose support, C. R. Robinson Fish screen for artificial waterways, G. D. Bird	630,758 630,576
04	Fire hose support, C. R. Robinson	630,563
7	Fishing reel, H. J. Smith Flour chest or bin, M. F. Brown Flushing tank, C. J. Ball Flushing tank, D. D. Buick. Fruit picker, H. W. Casler. Fuel, apparatus for manufacturing and pressing	630,632
0 4	Flushing tank, C. J. Ball	630,437 630,586
8	Fruit picker, R. W. Casler.	630,446
	artificial, H. C. B. Forester	
$\begin{bmatrix} 8 \\ 3 \end{bmatrix}$	artificial, H. C. B. Forester Fuel, artificial, H. C. B. Forester Fuel blocks, apparatus for manufacturing, W. B.	630,677
	Furnace. See Glass furnace. Ore roasting fur-	630,691
2	nace. Smoke consuming furnace.	630,629
7 9	Furrow opener, disk, F. K. Packham. Fuse, H. P. Merriam Fuse for projectiles, H. P. Merriam	630,620 630,622
5	Game, J. J. Billingsley	630,647 630,485
9	Game, W. K. Clark	630, 657 630,319
7 7	Garment fastening device, M. L. Perrottet Gas apparatus, E. Gobbe	630,516 630,683
9	Gas apparatus, E. Gobbe	630,493
3	Gas generating apparatus, acetylene, H. Daut Gas generator, acetylene, J. G. Kerr Gas generator, acetylene, Mace & Gerard Gas lighting device, automatic electrical, S. M.	630,834 630,722
5 6	Gas lighting device, automatic electrical, S. M. Meyer.	630,814
3	Gas, manufacture of, J. A. Faux	630,602 630,658
3	Gas or vapor engine, H. J. Perkins	630,738
17	actuated gate.	630,433
5	Gate, W. D. Wilson. Gear changing mechanism. A. Meyers. Gear generating machine, bevel, H. W.ICheney. Gearing, R. W. Jamieson. Gearing, angle, R. W. Jamieson.	630,512 630,325
77	Gearing, R. W. Jamieson	630,70 9 630,7 10
7 2	Generator. See Gas generator. Glass furnace, J. M. Miller	630,464
8	Globe and mounting therefor, W. M. Gold-	630.604
9	thwaite	630,773
0	fellow	630,807
6	Grater, nutmeg, J. B. Baily Grater, soap, J. L. Ryan. Grinder, machine sickle, E. V. Green. Grinder, mowing machine sickle, E. V. Green	630.313 630.413 630.687
3	Grinder, machine sickle, E. V. Green	630,688
	Grinding machine, T. Delahay	630,536
6	Guarded can and can guard, H. Bitner	630,443
18	Hair picker, J. W. Haines	630,606 630,818
6	Guarded can and can guard, H. Bitner. Hair picker, J. W. Haines. Hammer, pneumatic, C. K. Pickles. Hammock support, W. F. Parmelee. Handle. See Brush handle.	630,735
3	Hanger. See Door hanger.	630,675
88	Harness, H. R. McDonald	030.391
8	Harness machine, J. G. Eicholtz	630,656
83	Hat sizing tanks, strainer for, G. Wells	630,429 630,663
34	Harvester, Pettingill & Sanders. Hat sizing tanks, strainer for, G. Wells Hay and stock rack, combined, Cook & Shannon Hay press, I. W. Stuart. Heater. See Hot water heater.	630, 785
36 39	Heater, R. Bigley. Heel rubber, J. H. Morrow. Hemp disintegrating machine, P. W. Reinshagen	630,582
11	Hemp disintegrating machine, P. W. Reinshagen	630,408
0	Hinge, E. Breuning Hinge, B. J. Riley Hoe, M. V. Shoffner Hoof trimming nippers, J. D. Decelle Hook. See Whiffletree hook. Hoop. See Metal hoop.	630,480 630,410 630,750
32 66	Hoof trimming nippers, J. D. Decelle	630,670
1		
9	Horse detacher, A. L. Wilkie	630,350
	Horseshoe, nail less. Hewitt & Edds. Hose, knitted fabric for hydraulic, G. E. Stevens Hot water heater, tubular, Evans & Cuitis. Hydrocarbon burner, J. J. Anderson.	630,674
20)5	Hydrocarbon burner, J. J. Anderson Hydrocarbon burning apparatus, D. Simmons	630,580 630,751
27 14	Hydrocarbon burning apparatus, D. Simmons Incubator or brooder tank, M. M. Johnson Intrenching tool, A. G. Hoffmann Ironing table, A. C. Millard	630,755 630,829
3	Joint. See Itali Joint.	
)0)5	Kettle lifter, C. J. Berg	630,6 52 630,317
4	Key. See Watch key. Kiln. See Drying kiln.	
39	Kiln or furnace, O'Connell & Hillery	630,732 630,784
9	Knitting machine, G. E. Stevens Knobs, machine for securing shanks to carriage curtain, F. A. Neider	
8 6 8	Lahel medicine F. W. Bates	630,822 630,342
8	Labeling machine, G. F. Gipner. Lamp, electric arc. J. E. Morris. Lamp, electric arc. A. Stuttmann. Lamp, electric headlight, H. P. Wellman.	630,518
ĺ	Lamp, electric headlight, H. P. Wellman Lamps, vaporizer for hydrocarbon, J. Moscowitz.	630,475 630,549 630,467
7	Lamps, vaporizer for hydrocarbon, J. Moscowitz. Land roller and pulverizer, R. Newton Lathes, tool support for metal turning, W. L.	
8	(41)186	630,778 630,468
9	Lawn sprinkler, W. Quayle. Lease rod, F. L. Hammond Leather cutting machine, H. Parsons	630, 347 630, 402
16	Lemon squ'eezer, C. Morgan. Letter, detachable sign, C. F. Johnson. Lever actuated gate, J. M. Bell.	630,391
8		630,442
9	Lightning rods, machine for making, W. Dodd Limb. artificial, M. E. Rice Linotype machine, B. Nadall Liquid acolor, C. A. Clerce.	630,334
7	Linotype machine, B. Nadall Liquid cooler, G. A. Cless	630,50%
1	Liquid cooler, G. A. Cless	630,614
2	Locomotive engine, C. J. Mellin	630,619
3		
1 2 0	Lubricator. See Automatic Jubricator. Machinist's tool, J. Beach. Magnetic circuits, method of and means for inducing magnetism in, C. Steinmetz. Mail bag or pouch, D. R. Hering. Mail pouch fastener, W. E. Griffin. Marker, stock, J. H. Harvey.	630,418
3 6	Mail bag or pouch, D. R. Hering	630,694 630,504
2	Mail pouch fastener, W. E. Griffin. Marker, stock, J. H. Harvey. Measuring and registering device, E. S. Clayton.	630,349 630,659
3	Mechanical movement, S. C. Houghton	630,880 630,603
2	Metals, preparing cathodes for electrodeposition	30 ,796
1	of, H. Becker. Metallic carbids, manufacturing, H. L. Harten- stein.	630,690
8	Mill. See Grinding mill. Minjng machine, C. W. Miller	630,388
2	Moistening and sealing envelopes, machine for.	
9	Sickel & Riebl. Mortising machine, W. D. Herschel. Motor. See Current motor. Electric motor. Motor, G. M. Stock.	630,571 630,538
7	Motor, G. M. Stock	630,422 630,747 630,708
	Nail, B. Schnitzler. Necktie fastener, A. F. James. Nut lock, B. F. Keyser.	0.00,715
3	Nut lock, B. F. Keyser. Oil burner, A. J. Blackford. Oil can, non-explosive, G. A. Mentel.	630.770
9	Oil can, non-explosive, G. A. Mentel	630.488 630,510
2	Pad. See Wax pad. Paper applying device, wall. A. W. Fester	630,678
33	Paper box, G. R. Wyman Paper box machine, W. G. Cowell	630,789 630,596
8	Paper applying device, wall, A. W. Føster. Paper box, G. R. Wyman, Paper box machine W. G. Cowell. Paper cutting machine, Rousay & Sinclair. Paper folding apparatus, McDowell & Bengough.	630,631 630,626
)1	Paper pulp cleaning apparatus, A. Aberg Pedal and pedal bearing, M. Matthews	630,3 09 630,463
77	Pedal attachment for automatic playing devices,	630,557
3	R. W. Para. Pen. self filling fountain, W. W. Stewart. 630,526, Perforating machine, electromechanical, G. H.	630,527
24	Davis	630,598
51	in purifying, H. Frasch	630,496
	washing, and drying pebble, L. R. McLain	630,395
16	Photographic developing apparatus, J. K. Graeme Photographic shutters, time regulator for, H.	630,500
55	Bate Pianola guide R W Pain	630,644 630,558
3	Bate	630 572
6	Pipe case, smoker's, J. H. Tierney	630,756
18	Pipes by freezing, apparatus for preventing	630 700
15 31	Planter, D. R. Vivion	630.759 630.459
10	Picker. See Fruit picker. Hair picker. Pilot coupling, Teal & McPherson. Pipe case, smoker's, J. H. Tierney. Pipe clamp, H. A. Wahlert. Pipes by freezing, apparatus for preventing bursting of water. M. M. Hopkins. Planter, D. R. Vivion. Planter, D. R. Vivion. Planter, potato, A. J. Colburn. Plow, W. F. Hartig. Plow Wuehr & Frerich. Plow and cultivator, J. L. Hodges. Plow and cultivator, J. L. Lovett. Pneumatic drill, portable, H. J. Kimman. Pneumatic propulsion means, J. C. Walker.	630,662 630,454
53 55	Plow, Muchr & Frerich	630,816
15	Plow attachment, disk. J. I. Lovett	630,367
74	Pneumatic propulsion means, J. C. Walker	630,821
57	Post hole digger, R. W. Brooks	630,483
5	Pneumatic drin, portable, H. J. Kimman, Pneumatic propulsion means, J. C. Walker. Pocket safety attachment, D. T. Kissam. Post hole digger, R. W. Brooks. Pot. See Coffee pot. Power driven tool, W. F. Barrett. Power driven tool, F. H. Cathcart. Press. See Hay press. Printing press.	630,439
	Loner univentour, r. et. Catheart	000'08A
3	Press. See Hay press. Printing press. (Continued on page 136)	

A. E. Krause... Scott & Holmes... attachment for centrifugal machines, U.