ENGINEERING INVENTIONS.

An improvement in railroads has been patented by Mr. Robert P. Faddis, of Socorro, New Mexico. This invention covers a succession of metallic frames or cribs fitted to receive the rail seats, connections between the frames or cribs arranged opposite each other, and also connections between the rails held in the opposite frames or cribs.

A car brake has been patented by Mr. John Walsh, of Mansfield, Ohio. The invention consists of a lever connected with the brake mechanism, and also pivotally connected with a buffer held to slide longitudinally on the under side of the car, and engaged by a weighted lever held on a car to be coupled, it being specially intended to apply the brakes automatically when two cars come together for coupling.

AGRICULTURAL INVENTION.

A combined harrow, planter, and roller attachment for plows has been patented by Mr Samuel B. Smith, of Salt Lake City, Utah Ter. A roller is applied to the rear end of the seed-box carry ing frame, and adapted to actuate the seed slides, the frame having harrow teeth on its under side, while there is an adjustably applied draught connection be tween the attachment and plow.

MISCELLANEOUS INVENTIONS.

An improved freezer has been patented by Mr. Theodore L. Delpy, of Paris, France. This invention covers a mechanism for agitating the freezing mixture and a liquid to be frozen in a suitable combined apparatus, while it is also specially adapted for cooling bottles, meat, and other articles.

A nut lock has been patented by Mr. Aaron C. Vaughan, of Shane's Crossing, Ohio. It consists of a concavo-convex nut, thin enough to have some spring, with a round threaded hole in the center and an adjoining circular segmental hole cut entirely through the nut and opening into the bolt hole.

A writing pen has been patented by Mr. Conrad Seabaugh, of Austin, Texas. This inven tiou provides a thimble-like sleeve, adapted to be easily applied to the index or forefinger, whereby pen holders may be dispensed with, the thimble to be made in various sizes, to fit a large or small finger.

A walking cane has been patented by Mr. George H. Coursen, of Baltimore, Md. This inven tion covers a novel construction whereby cigarettes and matches may be safely and conveniently contained and carried in an ordinary walking stick.

A lighting attachment for mirrors has also been patented by the same inventor. The invention provides a device specially adapted for use in connection with adjustable mirrors, whereby a lamp or candle will be retained in a vertical position when supported by the device, regardless of the angle or inclination in which the mirror may be placed.

An indicator for doors has been patented by Mr. John D. Vail, of Blairstown, N. J. It is a device for attachment to a door, to indicate whether a room is vacant or occupied, the invention covering novel features of construction and being an improvement on a former patented invention of the same

A portable extension ladder has been patented by Mr. Simeon Piche, of Lake Linden, Mich. This invention provides a light and strong construction, whereby a ladder may be quickly and conveniently elevated and inclined toward the upper stories of a building, the device being one which may be utilized as a fire escape

A razor caster, for holding a barber's outfit of razors and shears, has been patented by Mr. John B. Parker, of Wardner, Idaho Ter. It consists of a frame having a series of radial wires, a marginal wire or ring, and an elastic band, in connection with a hollow conical shaped base, the construction being simple and inexpensive.

A scallop turner has been patented by Mr. William D. Hall, of Beloit, Wis. This invention covers a novel construction of machine, to facilitate various kinds of scallop work or beading, especially adapted for turning out the scallops on the flies of button boots or on gloves, or turning out the fingers of

A coal drill has been patented by Mr. Warren C. Johnson, of Oskaloosa, Iowa. A sleeve is interposed between the sliding supports of the drilling apparatus, and a bolt passed through the supports and sleeve adapted to clamp the supports against the side bars of the frame of the drill, whereby the drill may be clamped at any desired elevation by tightening a bolt.

The manufacture of sodium forms the Mr. Henry more, of Mount Vernon, N. Y. It consists in mixing together calcium hydrate, ferric oxide, sodium carbonate, and carbon, heating in a chamber, and collecting and condensing the vapors, mixing in proportion and proceeding after a manner described.

A belt clasp has been patented by Mr. Louis Sanders, of Brooklyn, N. Y. It is for use on belts usually worn by men and women, and is designed to effect a saving of the belt material, the device being such that no lap is necessary with its use, while a belt of any thickness may be easily adjusted and firmly retained in any desired position.

A door bell has been patented by Mr. William B. Atkinson, of Franklin, Ky. One or more pivoted hammers are made to revolve with the shaft which passes through a door, the hammers swinging freely and striking the gong by the action of gravity, the disk to which the hammers are pivoted, and the gong, being adjustable lengthwise on the shaft.

A letter box has been patented by Mr. Henry T. Sidway, of Chicago, Ill. This invention relates to street mail boxes having a mechanism indi-

cating the times of collection, and enerated by the door through which the mail matter is removed, the improvement providing for conveniently preventing the operation of the indicator by the door when not desired.

A vibrating propeller for boats has peen patented by Mr. Daniel B. Rowland, of Mount Shasta, Cal. Propelling blades to the rear of the boat are pivoted to a bar movable in the direction of its length, the blades closing against the bar moving in one direction, and being extended by the resistance of the water when the bar is moved in the opposite direc

A piano pedal manual attachment has been patented by Mr. Hartwell R. Moore, of Norwalk. Ohio. This invention provides pedal levers to be attached at pleasure, and especially adapted for an upright piano, to enable the performer to play the base with the foot, and thus secure organ pedal practice, the attachment not interfering with the appearance or action of the piano.

A wagon brake has been patented by Mr. William H. McCowan, of Watertown, Ohio. The parts are so located as to bring the brakes in a convenient position to have a short range of movement in front of the wheels, the construction affording a strong leverage, and requiring but little power and a slight movement of the brake lever, while avoiding rattling

An ore roasting furnace has been patented by Mr. Albert C. Johnson, of Wilmington, Del. It is for desulphurizing copper ores, iron pyrites gold-bearing sulphurets and other ores, and is provided with different compartments in which are placed raking bars of novel construction, the ore to be gradually moved from one compartment to the other and agitated in each compartment by the raking teeth or fingers, which also impart an outward or inward motion to

SCIENTIFIC AMERICAN

BUILDING EDITION.

OC'TOBER NUMBER.-(No. 36.)

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- A residence at Richmond Hili, N. Y., lately built, at a cost of ten thousand dollars. Perspective and floor plans.
- A dwelling for three thousand five hundred dollars Floor plans and perspective.
- Villa at Fontainebleau-M. E. Brunnarius, architect Cost, eight thousand six hundred dollars. Floor plans and perspective.
- 6. View of the new Protestant church at Lyons France. Cost, eighty thousand dollars.
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- 8. The chancel, Holy Trinity Church, Stratford-on Avon, showing the Shakespeare memorial bust and tablet, and the stained glass window, the gift of American visitors.
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- A Queen Anne cottage in Rochelle Park New Rochelle, N. Y., costing five thousand six hun dred dollars. Plans and perspective.
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- Miscellaneous contents: A new regimental armory, New York City. - Ventilating pipes. - National Zoological Park.—Lime from oyster shells, showing pit for burning shells.-Roman road construc--Beauty of the larch.-Sewage disposal in Great Britain. - Orchids, illustrated. - Test of fireproof wire lathing.-A clematis porch illustrated. trated with 3 figures. - Feeding coal to the fire. -Wood that will not blaze.-Fall of a stone church tower.-A ruined city in Texas.-Loofah as a substitute for sponge. - A California farm.-Defects in plumbing in the Maine Insane Asylum. An improved reversible shaper, illustrated.-Improved hand and foot power saws, illustrated .-Practical hints on disinfection.

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References to former articles or answers should give date of paper and page or number of question.

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Winerala sent for examination should be distinctly marked or labeled.

- (1) J. H. M. writes: I have a plunge battery with solution of bichromate of potash, oil of vitriol, and water. It works, decomposing water for a minute, and then stops. What is wrong with it, and how would you rectify it? A. You will get much bet ter results with two cells. Your E. M. F. is too low, and now is reduced by polarization.
- (2) D. L. writes: Kindly inform me be removed from them in preparing them for the market. A. Steaming and washing, treatment with caustic urface water bringing to the surface the warmer under

sods solution, or with chloride of lime followed by washing, are among the treatments we would suggest. One of the three will undoubtedly do the work.

- (3) H. E. A. writes: To what extent is water compressible? A friend of mine says that water is compressible to about half its volume. He says that he experimented by filling a section of pipe to its full capacity, and that he forced in a further (measured) quantity of 36 the full capacity of the pipe, and claims that this was owing to the compressibility of water. A. Water is slightly compressible, but it is doubtful if a pressure has ever been produced by man, or could be produced with the materials at his command, which would compress water more than an infinitesimal amount. Thus a pressure of one atmosphere will compress water about five one hundred-thousandths of its volume. Your friend's experiment was incorrectly performed.
- (4) W. C. M.—For bluing gun barrels by staining: Dissolve 41/2 ounces hyposulphite of soda in 1 quart water, also 11/2 ounces acetate of lead in 1 quart water. Mix the two solutions and bring to a boil in a porcelain dish or stone pot. Clean the gun barrel free from grease, oil, or varnish, warm the barrel and smear with the hot solution, using a piece of sponge tied to a stick. When color develops wash and wipe dry, finish with boiled linseed oil. You will find the receipt for browning gun barrels, as per U. S. Ordnance Manual, in Scientific American, December 5, 1885, in No. 18 of Notes and Queries.
- (5) S. P. G.—There is no method of dyeing or coloring brass and copper below the surface. An improvement on japanning may be made by coloring the surface. A steel color on brass and copper is developed by boiling the article in a solution of arsenic chloride in water. The same with sodium sulphide causes a blue color. Platinum chloride to which a small portion of tin nitrate has been added gives a black color. These are only surface colors and will not stand severe wear, but by japanning upon them you may obtain a more durable surface than with japan alone.
- (6) S. H. H. writes: The light on Cape. Bonavista, Newfoundland, can be seen 35 statute miles. The curvature of the earth would be something over 800 feet. How are we enabled to see round this curve? A. The curvature of the earth and refraction, as counted from the topmast of a ship, say 85 feet high, is equal to a distance of 12 miles, which leaves 23 miles for the distance from the horizon to the Bonavista light. The latter must be 340 feet above the sea to complete the 35 mile sight. You are correct as to the height of line of sight for 35 miles. Refraction reduces the height to 681 feet.
- (7) S. A. S. writes: I am making brass castings, and am having trouble with some of my heavy work being spongy. Am making new metal. A. You heat your metal too hot, so that it boils. Such metal always pours spongy. The copper should be brought down with old metal put into the pot with the copper. If you are making composition with a mixture of tin, a little tin or old composition should be placed in the pot with the copper. The furnace should be so managed that after the charge is fairly melted and stirred the pot should not stay in the furnace, but be drawn, and if too hot to make smooth castings, it should stand a few minutes, and be stirred until the heat falls to the proper temperature to pour. Castings should be gated up from the runner, which also prevents gas from being driven below the surface as by a down pour. In making 6 or 8 ounce yellow brass castings the bulk of the zinc should be put in the pot after it is taken from the furnace. Always use old metal to draw down the copper to a fluid state at as low a temperature as possible. Large castings should be poured with the coolest metal that will run and fill.
- (8) C. L. P. G.-Unbalanced slide valves have the full steam pressure on their backs equal to the area of the exhaust port of the valve and the differential pressure due to mean engine pressure for the steam ports, causing friction and excessive wear. Balanced slide valves are so arranged in their construction as to have a counter opening at the back or its equivalent in the steam chest to relieve nearly all the pressure otherwise pressing the valve hard upon the seat or face of the cylinder ports. These valves allow of an easy movement with little wear, but are more complex and expensive than the plain valves. They are of many forms and mostly covered by patents, the piston valve being one of the forms largely in use now. The double poppet valve used in our river steamers is a nearly balanced valve. Some of the cylindrical rotary valves are also nearly balanced.
- (9) J. D. K.—There was a time when steel for rails, tires, and axles was not made here equal in toughness to the English make. The tables have been turned, and now American rails, tires, and axles are fully equal if not superior to English make for toughness and durability, and at less than half the Inquirles not answered in reasonable time should English price of six years ago. We find no complaints 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.

 English price of six years ago. We find no complaints from the 775,000 tons of steel rails made in the United States during the first half of the present year and over a million tons made in the last half of 1887.
 - (10) J. H. McD. For stopping the bleeding of a tree, heat a sad iron a little hotter than usual for ironing, put some resin, thick tar, or beeswa's upon the cut surface, and melt it in by holding the hot iron on for some seconds, so as to heat the wood, that the resin or wax will stop the pores.-The expense of running a first class steam vacht varies greatly. as in ordinary use they are steaming only part of the time. While cruising, the expenses may run as high as \$150 per day, or with economy they may be run for \$100 per day.
- (11) W. C. P. asks whether the ice in the great lakes melts or sinks in the spring of the year. A. The ice in late spring changes its concoidal form to acicular crystallization, absorbing water, or, in the common phrase, becomes water-logged and transparwhat chemicals I may use to extract the gummy matter ent. At this time it is so tender that the least wind from vegetable substances, so that all stickiness might | breaks it up, when it floats as a mass of small crystals for a short time, and finally melts by the motion of the

stratum of water. It does not sink in masses, as claimed about decoys and blinds, retrievers and their charac-

- (12) R. J. L.—Coal or gas tar makes a good roof paint. Mix with any cheap earth color, as pulverized slate, chrome yellow, etc. Thin with ben-
- (13) L. E. C. asks: The E. M. F. and the ampere or strength of current from an induction coil 36 inch core, 4 layers of No. 15 primary. The se condary wire to be 20 layers of No. 30 wire, and would the current heat a small section of wire for cauterizing? A. The current strength and E. M. F. would depend on the battery. The current would be of very slight quantity and high E. M. F., and would heat probably not one thousandth as much wire as would the original current. For cauterizing use a heavy battery current applied directly without an induction coil.
- (14) J. S. McC.—There is little or no difference in the crushing strength of short cylinders, say 2 or 3 diameters, whether solid or hollow. It is when of considerable length, as in supporting columns, that the hollow cylinder of equal weight supports the greatest weight by the bracing it receives from its cylindrical form. If a long solid cylinder is braced so as absolutely to prevent flexure in any part, it will be equal to a hollow cylinder of the same weight and length for resisting a crushing weight or pressure.
- (15) L. I. O.—13 lb. of anthracite is equal to 1 gallon crude petroleum.
- (16) H. W. N. asks how to make a good blacking for shoes; also how to make a good washing compound. A. There are several receipts for both purposes, many of which we have already published. For valuable information on these and many similar subjects see "Trade Secrets," which we mail for 60
- (17) W. T. H.—For a black stain on iron mix 8 parts protochloride of antimony, 4 parts sulphuric acid, 2 parts empyreumatic pyroligneous acid, or gallic acid. Apply several coats of the mixture to the polished iron or until black enough, or paint with black japan varnish and bake hard. Then remove the polished surface with pulverized charcoal on a wet
- (18) C. D. M. asks a recipe for removing the oil burned on the finished parts of an engine. A. Use caustic soda or potash. What this fails of removing, take off with a scraper.
- (19) W. M. writes: I tin malleable iron, which comes from the bath nice and bright, but although I keep it covered, after a few days it gets red, copper colored in spots, and this color gradually spreads all over the work. Can you tell me the cause? A. The red color is probably derived from oxidation of the iron by the acid left in the pores of the iron. The acid rusts the iron and oozes out through the pores of the tin by the pressure due to increase of bulk by the action of the acid upon the iron; possibly also moisture may be absorbed by the acid through the tin, which is porous. Rinse the work, immediately after tinning, in boiling water, holding 2 oz. sal soda to the gallon in solution.
- (20) J. J. H. asks the proper way to cure animal skins before the hair is dyed. A. Scrape the flesh side clean, and while they are moist (but not wet) rub in liberally a mixture of alum and salt, about one-half of each. Roll up, hair side out, for two to four days, then shake out and give another application, but with less salt. In two to four days more, according to size of skin, shake and beat out clean, and soften the skin by working it well over.
- (21) W. H. E. asks: At what speed can a grindstone run, six feet diameter and ten inches thick, with perfect safety? A. 150 revolutions per
- (22) H. H. W. asks a good method for coating small castings of iron and brass with lead, also what is the technical name for this process? A. The process is called kalamein. Cast iron articles are galvanized in the regular way and then passed through a lead bath. Wrought iron and other metals may be either galvanized or tinned and then leaded.
- (23) H. E. H. asks for a method by which he can find the point in an irregular triangle, from which as a center to inscribe a circle whose circumference will be tangent to each side of the triangle. A. Bisect any two angles of the triangle, prolong the bisecting lines until they intersect, and use their intersection as the center.
- (24) R. W.—The tensile strength of wrought iron slightly increases with temperature from 60° (1) to 212° (1.2), and to 435° (1.4) of its initial tensile strength. This is no excuse for testing boilers with steam at a risk in case of rupture. We only repeat that there is no difference in a given pressure by whatever means it is procured.
- (25) J. P. H. asks which would be the most efficient way to remove blood and grease stains from birds to be set up or stuffed. Also if it would be better to remove it before or after stuffing? A. Wash with pure water and keep agitating the feathers with the fingers until they are dry. This will remove blood. Similar treatment with benzine will remove grease. Do this before stuffing. It will undoubtedly injure the specimen to some extent.

NEW BOOKS AND PUBLICATIONS.

WILD FOWL SHOOTING. By William B. Leffingwell. Chicago: Rand, McNally

This is a book made up principally of the personal experiences of the author, and they have been sufficiently extensive to make it a genuine pleasure to follow him, in its pages, through many delightful excursions often attended with much hard work and exposure, but generally resulting in the "bagging" of a good quantity of game. The resorts, habits, and flights of wild fowl are described, with the most successful method of hunting them, and much practical information is plainly set forth touching the right kind of boats confection pan, steam, W. L. Jancey. 391,488 Knitting machine, croular, R. M. Appleton. 391, to use and how to build and take care of them, Connecting rod, R. Humble. 391,148 Knitting machine, straight, A. Beyer. 391,

teristics, and on the selection and use of a gun. The book cannot fail to be extremely valuable to every amateur, while its pages are full of entertainment to such as have been most successful in this class of sport.

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	Cards,	etc.,	devi	ce for	automati	of, R. Selle cally exhib	iting	•	Ė
	bus	iness	, G. D	. Keacl	١			391.160	; 1
	Carria	ze cur	tain	light, F	. A. Neid	er		391,063	Ė
						ne endless, C		391,090	1
	Sm	alley.							į
	Cart, r	oad, C oad, E	i. C. I Ketch	1ayes um & P	almer	· · · · · · · · · · · · · · · · · · ·) 1
	Cart, r	oad, F	F. J. 1	Melvin					11
				ine case arding (F. N. Jones		391,051	ľ
	Charco	oal, ap	para	tus for 1	estoring	the spent	pro-		į.
	Check	loop,	over	iraw, L	D. Jone	8	· • • • • •	391,370	ŀ
						. A. Just			
	Churn,	, J. M	. Hur	it					:
	Clasp. Cleane				Shoe lace er.	clasp.			
	Clock,	A. Pl	helps.					391,271	
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	Clothe	s drie	r, E.	J. Ritte	rhouse			391, 191	١,
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	Coal di	rger rill. W	7. C. J	ohnson	•••••			891,223 891,157	
	Collar	stuffi	ng ma	chine,	W. Fogle	song	••••	391,134	-
	Confed	itrato etion i	or,Sta pan. s	rr & Ki team. V	nley V . L. J an	cey	••••	891,341 391,269	أ
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Cotton picker's sack, T. Cliett	Lantern, G. A. Kennedy Lantern, tubular, E. C. Glazier	
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273 387 175 365 386 338 354 385 239 342 371 298 334 383 082 052 1127 392 1130 1133 316	Plow, wheel, B. F. Butler. Plow wheel, F. A. Head. Plows, combined harrow, planter, and roller attachment for, S. B. Smith. Plug, water, Crowell & Harrison. Post. See Fence post. Post aldate holder, E. C. Walker. Pot. See Dimer pot. Potato digger, J. P. McLaren. Potato digger, C. Rieohen. Potato digger, W. Schrader. Press. See Screw press. Printing and decorating china, W. H. Turner Printing gold, silver, or platinum decorations on ceramic wire, Ehrlich & Storck. Printing, lithographic, J. W. Osborne. Printing machine, R. Miehle. Printing with gold. silver, or platinum, producing a bright, Ehrlich & Storck. Projectile, H. P. Hurst. Propeller for boats, vibrating, D. B. Rowland. Pump, C. P. Rinker. Pump, oscillating, L. J. P. Pontallie. Purifier, C. E. Henshaw. Railway, R. P. Faddis. Railway signal automatic, Ross & Darter. Railway switch and switch mechanism, A. K. Mansfield. Railway system, electric, D. G. Weems. Railway strains, device for coupling the steam pipes of, D. H. Sherman.	391,115 391,047 391,204 391,029 391,216 391,059 391,066 391,036 391,036 391,178 391,196 391,196 391,196 391,367 391,196 391,368 391,368 391,368 391,368 391,368
273 387 175 365 386 338 354 385 239 342 371 298 334 383 3052 1127 392 1130 1133 316	Plow, wheel, B. F. Butler. Plow wheel, F. A. Head. Plows, combined harrow, planter, and roller attachment for, S. B. Smith. Plug, water, Crowell & Harrison. Post. See Fence post. Post and the holder, E. C. Walker. Pot. See Dimer pot. Potato digger, J. P. McLaren. Potato digger, C. Rieohen. Potato digger, W. Schrader. Printing and decorating china, W. H. Turner Printing gold, silver, or platinum decorations on ceramic wire, Ehrlich & Storck. Printing, lithographic, J. W. Osborne. Printing machine, R. Miehle. Printing mith gold, silver, or platinum, producing a bright, Ehrlich & Storck. Projectile, H. P. Hurst. Propeller for boats, vibrating, D. B. Rowland Prulley, belt, J. G. Moomy. Pump, C. P. Rinker. Pump, oscillating, L. J. P. Pontallie. Purifer, C. E. Henshaw. Railway gate, J. H. Candee. Railway switch and switch mechanism, A. K. Mansfield. Railway system, electric, D. G. Weems. Railway strains, device for coupling the steam pipes of, D. H. Sherman. Railways, cable grip for, Singleton & Hoffman	391,115 391,047 391,204 391,029 391,216 391,059 391,065 391,065 391,367 391,196 391,196 391,196 391,196 391,196 391,196 391,189 391,189 391,189 391,388 391,394 391,394 391,202
273 387 175 365 386 338 354 385 239 342 371 298 383 382 052 1127 392 1130 1133 316 194 258 095 094 074	Plow, wheel, B. F. Butler. Plow wheel, F. A. Head. Plows, combined harrow, planter, and roller attachment for, S. B. Smith. Plug, water, Crowell & Harrison. Post. See Fence post. Postal date holder, E. C. Walker. Pot. See Dinner pot. Potato digger, J. P. McLaren. Potato digger, C. Rieohen. Potato digger, W. Schrader. Press. See Screw press. Printing and decorating china, W. H. Turner Printing gold, silver, or platinum decorations on ceramic wire, Ehrlich & Storck. Printing machine, R. Miehle. Printing with gold, silver, or platinum, producing a bright, Ehrlich & Storck. Projectile, H. P. Hurst. Propeller for boats, vibrating, D. B. Rowland. Pulley, belt, J. G. Moomy. Pump, C. P. Rinker. Pump, oscillating, L. J. P. Pontallie. Parifier, C. E. Henshaw. Railway, R. P. Faddis. Railway signal automatic, Ross & Darter. Railway switch and switch mechanism, A. K. Mansfield. Railway system, electric, D. G. Weems. Railways, cable grip for, Singleton & Hoffman. Railways, etc., lifting machine for, F. Goligbtly et al. Railways, turntable switch for single line ele-	391,115 391,047 391,204 391,029 391,216 391,059 391,078 391,086 391,036 391,036 391,065 491,178 391,196 391,190 391,190 391,191 391,386 391,191 391,388 391,168 391,394 391,394 391,394
273 387 175 365 386 338 354 385 239 342 371 298 383 082 052 1127 392 1130 1133 316	Plow, wheel, B. F. Butler. Plow wheel, F. A. Head. Plows, combined harrow, planter, and roller attachment for, S. B. Smith. Plug, water, Crowell & Harrison. Post. See Fence post. Postal date holder, E. C. Walker. Pot. See Dimer pot. Potato digger, J. P. McLaren. Potato digger, C. Rieohen. Potato digger, W. Schrader. Press. See Screw press. Printing and decorating china, W. H. Turner Printing gold, silver, or platinum decorations on ceramic wire, Ehrlich & Storck. Printing machine, R. Miehle. Printing mith gold, silver, or platinum, producing a bright, Ehrlich & Storck. Projectile, H. P. Hurst. Propeller for boats, vibrating, D. B. Rowland. Pulley, belt, J. G. Moomy. Pump, C. P. Rinker. Pump, oscillating, L. J. P. Pontallie. Railway, R. P. Faddis. Railway, R. P. Faddis. Railway switch and switch mechanism, A. K. Mansfield. Railway system, electric, D. G. Weems. Railways, cable grip for, Singleton & Hoffman. Railways, etc. lifting machine for, F. Goligbtly et al. Railways, turntable switch for single line elevated, O. B. Bocande. Razor caster, J. B. Parker. Reapers and mowers, cutting apparatus for, A.	391,115 391,047 391,204 391,029 391,216 391,059 391,078 391,065 391,065 391,065 391,178 391,065 391,178 391,196 391,196 391,190 391,366 391,190 391,388 391,366 391,191 391,368 391,191 391,368 391,191 391,388
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273 387 175 365 338 354 385 3239 342 371 298 334 298 334 392 1127 392 1130 1133 316 1192 258 095 094 074 1152 206 297 326	Plow, wheel, B. F. Butler. Plow wheel, F. A. Head. Plows, combined harrow, planter, and roller attachment for, S. B. Smith. Plug, water, Crowell & Harrison. Post. See Fence post. Postal date holder, E. C. Walker. Pot. See Dimer pot. Potato digger, J. P. McLaren. Potato digger, C. Rieohen. Potato digger, W. Schrader. Press. See Screw press. Printing and decorating china, W. H. Turner Printing gold, silver, or platinum decorations on ceramic wire, Ehrlich & Storck. Printing machine, R. Miehle. Printing with gold, silver, or platinum, producing a bright, Ehrlich & Storck. Projectile, H. P. Hurst. Propeller for boats, vibrating, D. B. Rowland. Pulley, belt, J. G. Moomy. Pump, C. P. Rinker. Pump, oscillating, L. J. P. Pontallie. Parifier, C. E. Henshaw. Railway, R. P. Faddis. Railway system, electric, D. G. Weems. Railway system, electric, D. G. Weems. Railways, cable grip for, Singleton & Hoffman. Railways, etc., lifting machine for, F. Goligbtly et al. Railways, turntable switch for single line elevated, O. B. Bocande. Railways, turntable switch for single line elevated, O. B. Bocande. Raepers and mowers, cutting apparatus for, A. Gunz. Regulator. See Watch regulator. Revolver, Johnson & Fyrberg	391,115 391,047 391,204 391,029 391,216 391,059 391,068 391,036 391,346 391,036 391,178 391,196 391,196 391,196 391,366 391,196 391,366 391,196 391,366 391,196 391,366 391,189 391,366 391,189 391,366 391,189 391,366 391,141 391,294 391,141 391,294 391,142
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273 387 175 58386 338 338 338 338 338 339 32 23 32 2127 339 2 127 339 2 139 334 336 336 69 69 69 69 69 69 69 69 69 69 69 69 69	Plow, wheel, B. F. Butler. Plow wheel, F. A. Head. Plows, combined harrow, planter, and roller attachment for, S. B. Smith. Plug, water, Crowell & Harrison. Post. See Fence post. Post and the holder, E. C. Walker. Pot. See Dimer pot. Potato digger, J. P. McLaren. Potato digger, C. Rieohen. Potato digger, W. Schrader. Press. See Screw press. Printing and decorating china, W. H. Turner Printing gold, silver, or platinum decorations on ceramic wire, Ehrlich & Storck. Printing, lithographic, J. W. Osborne. Printing machine, R. Miehle. Printing machine, R. Miehle. Printing with gold, silver, or platinum, producing a bright, Ehrlich & Storck. Projectile, H. P. Hurst. Propeller for boats, vibrating, D. B. Rowland. Pulley, belt, J. G. Moomy. Pump, C. P. Rinker. Pump, oscillating, L. J. P. Pontallie. Purifler, C. E. Henshaw. Railway gate, J. H. Candee. Railway signal automatic, Ross & Darter. Railway switch and switch mechanism, A. K. Mansfield. Railway system, electric, D. G. Weems. Railways, cable grip for, Singleton & Hoffman. Railways, turntable switch for single line elevated, O. B. Bocande. Railways, turntable switch for single line elevated, O. B. Bocande. Razor caster, J. B. Parker. Reapers and mowers, cutting apparatus for, A. Gumz. Regulator. See Watch regulator. Revolver, Johnson & Fyrberg. 391,154. Revolver, R. T. Torkelson. Rotary motor, C. A. Parsons. Ralling machine, A. Sedgwick. Safe bouglar proof, M. S. Goldsmith. Safe lock, W. E. Lee. Safety pin, S. A. Haish. Sash lock, W. E. Lee. Safety pin, S. A. Haish. Sash lock, W. D. Devers. Sash lock, W. J. Devers.	391,115 391,047 391,204 391,029 391,216 391,059 391,065 391,065 391,367 391,196 391,197 391,294 391,141 391,294 391,142 391,167 391,214 391,167 391,214 391,167 391,214 391,167 391,214 391,167 391,214 391,167 391,214 391,167 391,214 391,167 391,214 391,167 391,214 391,167 391,214
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