Cash indicator, register, and recorder, P. Yoe.... Casting grids, machine for, A. F. Madden.......

gas be used for the same purpose as natural gas? I am trying to find out if I can use coal gas for welding iron on a small scale. A. Natural gas contains hydrogen, nitrogen, marsh gas and other hydrocarbons, carbon monoxide, etc. Coal gas is inferior to it for welding. because it contains too high a percentage of carbon. It; out any pressure above atmospheric pressure? A. Yes. can be used with a hot blast with some success. Water 3. Where could I get a cheap work on the use of gas or the contrary effect. The water rose in the well, flooded

(3478) E. D. H. asks: 1. What is the best formula for making dry hop yeast? What is the best mode of drying it? If dried by heat, about what should the temperature be? A. Mix 31/2 ounces of hops with 15 quarts hot water and 334 pounds rye flour. When it over night add 7% pounds of corn or barley meal, knead sun, turning from time to time. To use, a piece is place, when it is ready for use. 2. Is there any cold air process by which it can be dried by evaporation? A. It can be dried by being placed in a tight jar in which course be in its own proper receptacle, and not in contact with the lime.

(3479) L. S. savs: We send inclosed two injure goods? The darker worm was found in a substance resembling silk and which adhered pretty firmly to the plush. A. Reply by Prof. C. V. Riley .- One of the larvæ forwarded had transformed to pupa in transit, but the other is still active. It is the larva of a beetle of the family Cleridæ and the genus Corynetis. This ; true. family of beetles is, as a rule, carnivorous or predaceous in the early stages. It is therefore probable that the larvæ were attracted to the goods by the presence of other larvæ, the latter probably of some of the com-mon "clothes moths." I hope to rear the image and should much like to have other specimens. If it turns out, as seems probable, that this larva will prey upon the various clothes moths that so trouble the housekeeper, it is well to know the fact, as possibly it may be encouraged and utilized to advantage. On the othe hand, one of the species of the genus, namely, Corynetis rufipes, is known to be injurious to preserved meat and has been found particularly bad in hams. An account of its injuries has been published by me in my Sixth Report on the Insects of Missouri, page 96. The species sent by your correspondent is smaller, yet all the species of the genus in the larva state, so far as known, feed on dead rather than live animal matter, and the presumption is that in this case the two specimens had left some such matter and got on the plush accidentally, or they may have fed on the exuvize of the clothes moths. The substance resembling silk may a cocoon made by the Corunetis larva itself, preparatory to pupation.

(3480) W. R. B. asks how to make beef, iron and wine. A. Liebig's extract of beef 1/2 ounce avoirdupois, ammonio-citrate of iron 256 grains, spirits of orange 1/2 fluid ounce, distilled water 11/2 fluid ounces, sherry wine sufficient to make 16 fluid ounces. Dissolve the ammonio citrate of iron in the water, dissolve the extract of beef in the sherry wine, add the spirit of orange and mix the solutions.-Beef, iron, and wine for soda fountains: Beef, iron, and wine 1 ounce, vanilla sirup 3 ounces.-For dispensing: For 2 quarts, concentrated extract of beef, 2 ounces; pyrophosphate iron,1/2 grain. Dissolve in 1/2 pint boiling water. Add tincture curacoa, 2 ounces; tincture orange peel, 2 ounces; sirup, 121/2 ounces; alcohol, 121/2 ounces; solution citrate of ammonia, 2 ounces; sherry wine, 23 ounces. The information given above is taken from "The Scientific American Cyclopedia of Receipts, Notes and Queries.'

(3481) G. L. B. asks how to make bluing for laundry use. A. 1. Dissolve good cotton blue (aniline blue 6 B) in cold water. 2. Dissolve fine Prussian or Berlin blue with 1/6 part of oxalic acid in water, or use ferrocyanide of potassium (1-12 part) in place of oxalic acid. 3 A disinfective laundry blue.-Mix together 16 parts of Prussian blue, 2 parts of carbolic acid, 1 part of bora, and 1 part of gum arabic into a stiff dough. Roll it out into balls as large as hazel nuts, and coat them with gelatin or gum, to prevent the carbolic acid from escaping. 4. Water 15 parts; dissolve in this 116 parts indigo carmine, add 34 part gum arabic. The Scientific American Cyclopedia of Receipts, Notes and Queries." In press.

(3482) K. F. asks: 1. What will cement. thin ivory pads on nickel-plated steel triangles without coloring the ivory or injuring the triangle and that will ENTIFIC AMERICAN. There is no book on the subject. set in 48 hours or less? A. Mastic varnish 1 part, 10. I have a room, size 25 x 30 feet, in which there is a isinglass 2 parts. Dissolve the isinglass in as little fireplace that is 6 feet long, and whenever a fire is varnish. The latter is prepared by making a strong and no matter how little the window is opened, the fire solution of gum mastic in alcohol and benzine, 2, stops smoking. Now, how can I fix it so that I can Johnson's "Theory and Practice of Surveying," price from the outside of the house to the fireplace, having Surveying," price \$3.50. 3. What is the best book on mining surveying? A. We recommend Brough's 'Mine Surveying," price \$2.50 mailed.

(3483) H. G. J. asks: What is the velocity of light and of the electric current? A. The velocity of light is 185.420 miles per second. Wheatstone gives the velocity of static electricity as 288,000 miles per second, which is greater than that of light. Current electricity, where it meets with no resistance, has about the same velocity as light. The velocity of electricity on an iron wire is variously estimated at from 18.400 to 62.100 miles per second, and on a copper wire 111.780 miles per second. The nature of the conductor and its about 105 feet dep. When the well digger got down environment has an influence on the velocity.

(3484) C. A. W. asks: Which travels the faster-light or electricity? Please state also the rate of each. A. See reply above.

factured in the United States anywhere. If so, where 'say that they can hear the water rushing through the

and by whom? A. Address the Pennsylvania Salt Could gas be compressed in tank and carried any distance and used to drive an Otto gas engine, and would ture of Illuminating and Heating Gas,!' by Burn-, price \$1.50, also Richard's " Practical Treatise on the Manufacture and Distribution of Coal Gas," price \$12 by mail post paid.

(3486) J. C. writes: 1. In speaking of has cooled to a lukewarm temperature only add % pint the resistance of fields in a shunt dynamo as being 14 of beer yeast, and allow it to ferment. After standing times that of the armature, do you mean all the wire on armature or only half between the brushes, or as have when it returns to the earth? 2. If at close range it into dough, and roll out to a thickness of 1/2 inch. Cut some say only a quarter of the armature wire 1s taken this into small cakes and dry in a warm room or in the as the resistance of armature when comparing it with A. The resistance of the armature is meant. soaked in warm water left to stand 12 hours in a warm | This is one quarter of the resistance of the total length of wire on the armature, for the reason that the current height that the ball reaches before returning. The goes through the two halves of the wire in parallel, thus reducing the length of the conductor one-half, and at a lump of quicklime is placed. The yeast must of the same time doubling its sectional area, thus reducing the resistance as above stated. 2. Does the same resistance do for motor shunt-wound? Yes.

(3487) R. N. asks: During an arguworms found in a piece of plush. Would you kindly ment in this city a few days ago, as to the component tell me what they are and whether they are liable to parts of glass, one party asserted that glass could be manufactured from straw. Immediately a bet was made that he was mistaken, and the parties to the wager agreed to leave it to the Scientific American for decision. A. The ashes of straw might be fused into a species of glass. To this extent the assertion is

> (3488) F. F. writes: Can you tell me of glue or cement, for the purpose of attaching cloth or felt to garments, that is absolutely waterproof, and will resist 140° Fah. of heat, also dry quickly? What is the best method of using same? A. We know of nothing better than the sheet gutta percha used by tailors for the purpose you mention. It answers to all the qualities you call for except the heat. It softens under heat. In use place a sheet of the percha between the two surfaces of fabric to be joined, and press the same with a hot flat iron. The operation is quick and effective, provided the heat is maintained long enough to penetrate the fabric and melt the percha.

(3489) E. G. H. asks (1) for some preparations that will render cane pole fireproof. I refer to the "fishing pole" grown in the South. In working the material I have considerable waste and propose to make pipes, for smoking tobacco in, so want to "get on to" a treatment not expensive, that will admit of using them in that way. Would like a chemical that they could be soaked in, and that would not give off any unpleasant have been the cocoon of the clothes moth larve or else; odor or taste. A. Soak the cane in a solution of phosphate of soda. 2. A good formula for marking ink to be used in laundry for marking clothes, that will not require to be (the goods) prepared in any way before or after marking, but be ready to go into the wash. A. For ink formulæ in general we refer you to our SUPPLEMENT, No. 157. 3. Can you give mean idea of some preparation for bleaching, in laundry work, better than chloride of lime? A. For real bleaching we cannot. For laundry work in general we refer you to Scientific American No.9, vol. 61; Supplement, No. 577.

> (3490) G.—A machine that will always keep itself in motion without exterior aid, and without consuming fuel, might be termed a perpetual motion No reward offered.

> (3491) M. S. P. asks: What can I coat tin battery cells with to make them acid proof? A Try a coating of coal tar pitch.

(3492) E. B. C. asks: 1. Where can I obtain paramidophenol to be used for a developer as described in your paper of August 29? A. From the principal dealers in photographic materials in New York, 2. How much does it cost? A. \$8 per ounce 3. In what proportions should I use it in developing? A. In the proportions given in Scientific AMERICAN, 4. Is it poisonous, and if so, what forms a good antidote for it? A. Yes, to take internally. Antidote, a strong emetic. 5. Is hydroquinone poisonous, and if so, what is a good antidote? A. Yes. Antidote, a strong emetic. 6. What is the formula of paramidophenol? A. The chemical formula is $C_6H_4(N)$ H2)OH. 7. How much did the Philadelphia cost? A. \$1.350,000. 8. What is her type? A. See Scientific AMERICAN, vol. 61, Nos. 6 and 11, for illustrations of her. 9. Is there any good book published exclusively on the new American navy? And if so, how much does it cost? A. Consult the back numbers of the Sciwater as possible with a little alcohol, and mix with the lighted it will always smoke unless a window is opened, What is the best book on surveying, more especially have the windows all shut, and have the fire not to with the transit? A. We recommend and can supply smoke? A. Conduct a special air flue under the floor \$3.50 by mail, also Gillespie's "Practical Treatise on the aperture at the grate closed with a register. This will supply a constant current of air when the room is closed. 11. How muchabout per night would it cost to run a lime light in a Marcy sciopticon, for say about two hoursat a time? A. The cost for gas will be about \$3.50, for lime 10 cents. 12. Would it be safe to use a lime light, and what good book can I get on the subject, and how much does it cost? A. It will be safe to use the lime light if the gases are compressed in iron cylinders. We refer you to the "Book of the Lantern," by T. C. Hepworth, which we can send by mail. Price

(3493) J. M. L. writes: I have a well some 85 feet, the solid rock was struck. Then a hole was drilled 15 feet, water was found in either slate or soapstone, judging from the appearance of the material that stuck to the drill. The water rose within 3 feet of the top of the rock. I hav. a windmill which pumps (3485) I. E. asks: 1. Is alumina manu- the water out faster than it comes in, although two men

bottom of the well. I want to know what I ought to Company, Philadelphia. It is a dyer's chemical. 2. have done to increase the supply of water. I have been told if I drop into the hole 2 pounds of quicksilver, it will cause the water to come in more freely. I am told the tanks empty themselves through the engine with- of a man in Quincy who wanted to dry up his well; he was told to put quicksilver in it; he did so, but it had gas made by passing steam through white hot coal is its manufacture? A. We can supply you with works superior to either for welding iron. It is subject such as "A Treatise on the Manufacture the sewer. Can you give me any information if the the sewer. Can you give me any information if the quickeilver will have the desired effect? I have built small fish pond, and I want to keep It supplied with water from the well. A. We have no confidence in the quicksilver yarn. Drill the hole deeper to get more

> (3494) R. W. S. asks: 1. If a rifle ball be fired perpendicularly into the air, what velocity will it will penetrate 5 inches into a piece of wood, how far will it penetrate the same piece of wood after falling from a perpendicular shot? A. The return velocity depends upon the initial. The greater difference with the greater friction of the air retarding the velocity both ways. We cannot give definite figures on account of the uncertainty of muzzle velocity and height of projection, as well as relative densities of bullet and air. Anelongated and globular ball having different frictional exponents. Under all circumstances the return will have a greatly lessened penetration.

> (3495) E. P. G. says: Kindly inform me through the inquiries column in your paper what is the cheapest way of dressing the surface of a grindstone which has worn unevenly, to produce an even and true surface again? It is not valuable enough to warrant purchasing a diamond tool, and I am not in or near a town where such a tool is owned, the use of which could be hued for this one occasion. A. Nail or fasten a block of wood across the frame as close as possible to the stone: use a piece of 34 or 1 inch gas pine, with the end resting on the block, and the edge against the stone; by rolling the gas pipe back and forth along the face of the stone it can be turned off true. Use no water.

> (3496) P. W. K. asks: Will it make any difference which way you jump (while in a car moving at the rate of 60 miles per hour), either against or with the motion of the train? By the difference I mean difference in distance jumped, measuring from a certain spot in the car floor. A, It will make no difference which way you jump; the distance jumped will be the same, as you are moving with the same motion as the

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for pa tents 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, 361 Broadway, New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

October 6, 1891.

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Advertising purposes at night, illuminating bal- loon for, A. Gross	400.004
Alanm See Floring learn	460,674
Alarm. See Electrical alarm. Aquarium, G. P. A. Gunther. Azle box, car, T. B. Stewart. Azle lubricator, J. A. Scarborough. Azle, vehicle, Johnson & Mandt. Azles, ball bearing for vehicle, Miller & Griswold Bag holder, W. G. Adams. Bag making machine, three-cornered, Baron & Bibby.	460 800
Axle box, car, T. B. Stewart	460,604
Axle lubricator, J. A. Scarborough	. 460,833
Axle, vehicle, Johnson & Mandt	. 460,873
Axles, ball bearing for vehicle, Miller & Griswold	460,878
Bag holder, W. G. Adams	. 460,698
Bag making machine, three-cornered, Baron & Bibby. Baling cotton, J. G. Goldthwaite	460,907
Poling cotton I G Goldthweite	460,747
Reging annuratus for supplying water to wash J	. 200,1211
Bag making machine, three-cornered, Baron & Bibby. Baling cotton, J. G. Goldthwaite. Basins, apparatus for supplying water to wash, J. J. Royle. Basket wing machine. J. Knopp.	460,888
J. Royle. Basket wiring machine, J. Knopp. Bed brace Critcher & Webber.	460.827
Bed brace, Critcher & Webber. Bed, folding, C. L. Gill. Bed, invalid, G. A. Leonhard. Bell spring and clapper bolder, G. G. ampbell Belting joint, D. B. Kelly. Bicycle, W. R. Mercer. Billiard table pneumatic, E. L. McConaughy.	46:1,563
Bed, folding, C. L. Gill	. 460,574
Bed, invalid, G. A. Leonnard	4001,500
Bell spring and enapper bolder, G. G. ampuell	460 700
Ricycle W R Mercer	460 784
Bicycle, W. R. Mercer Billiard table, pneumatic, E. L. McConaughy Bit holder, compensating, S. B. Minnich Board. See Game board.	460.592
Bit holder, compensating, S. B. Minnich	460,922
Board. See Game board.	
Roat detaching apparatus, automatic, B. A. Cabe	-
hart	460,000
Boiler. See Steam boiler. Wash boiler.	400 800
Boot or aboo bool O Ziota	460,763
Rottle nursing H O Flodin	460,904
Boiler. See Steam boiler. Wash boiler. Bolting devices, foo board for, J. A. Segbers Boot or shoe heel, O. Zietz. Bottle, nursing, H. O. Flodin. Box. See Axle box. Document box. Letter	200,001
box. Paper box. Box, J. H. Hartridge Box lid fastener, H. H. Snow.	·
Box, J. H. Hartridge	. 460,866
Box lid fastener, H. H. Snow	. 460,834
Brace. See Bed brace. Bracket for adjustable shelving, T. F. Mark	400 700
Braak. See vender brake. Bread knife, R. J. Christy. Bread, meat, and vegetable slicer, S. Fehr. Brick kin, W. L. Gregg. Bridge gate, M. & J. Huunes Bridge, wooden, B. F. Ferguson. Bridle attachment, J. W. Beam. Buckle, G. W. Bussey. Burner. See Gas burner. Hydrocarbon burner. Oll burner.	460 577
Bread meat, and vegetable slicer, S. Fehr	460.715
Brick kiln, W. L. Gregg.	460,637
Bridge gate, M. & J. Hunnes	. 460,797
Bridge, wooden, B. F. Ferguson	460,856
Bridle attachment, J. W. Beam	460,840
Buckle, G. W. Bussey	460,846
Durner See Gee humar Undrocarben humar	400,721
Oll burner.	•
Cable crossing, J. Dunott	. 460,912
Cable crossing, J. Dunott	
Wilder	460,767
Wilder Camera roll holder register, H. C. Boyer. Can labeling machine, H. Albert. Cane juice straining device, W. C. Hazlip	. 460,672
Can integrating machine, H. Albert	460,788
Car brake mechanism M. Learv	460,738 460,867 460,586 460,841 460,936
Car coupling, W. Bentley	460.841
Car coupling, Goss & Harrell	460,936
Car coupling, J. W. Kirby	460,917
Car coupling, Molseed & Finch	460,792
Car coupling, H. L. Peck	460,707
Cane jutes straining device, W. C. Hazlip. Car brake mechanism, M. Leary Car coupling, W. Bentley. Car coupling, W. Bentley. Car coupling, J. W. Kirby. Car coupling, J. W. Kirby. Car coupling, H. M. Kirby. Car coupling, H. C. Peck. Car door look. C. H. Ives. Car, express, P. P. Doering. Car, band, T. Lo Casto. Car Journals, cap for lubricating boxes for, J. Parker. Car seal, E. S. Wheeler, Jr. Carpett clearing apparatus, pneumatic, G. I.	460,917 460,792 460,797 460,798 460,744
Car hand T. Lo Casto	460,558
Car journals cap for lubricating boxes for J	1.
Parker	460,923
Car seal, E. S. Wheeler, Jr	. 460,766
Carpet cleaning apparatus, pneumatic, G. I	4 400 000
Carriage S. V. IReiley	460,935
Carriage hody, H. A. Muckle	460,547 460,682
Carriageseat, J. Currier	460,910
Carriage, S. I. Bailey Carriage body, H. A. Muckle. Carriage seat, J. Currier. Carrier. See Parcel carrier.	200,020
Cart, road, W. F. Murphy	. 460,648
Cartridge, P. Ambjorn	460,905
Carrier. See Parcel carrier. Cart, road, W. F. Murphy. Carfridge, P. Ambjorn. Case. See Mailing case.	

asting grids, machine for, A. F. Madden 460, entering device, R. C. Nugent 460, hair, J. W. H. Doubler 460, hopper See Cotton changer	933 883 568
hopper. See Cotton chopper. huck, jathe, J. N. Skinner. 4600. huck for holding pipe nipples, R. G. Ferguson. 4600. hurn, C. G. P. De Laval. 4600.	601 746 585
huck for holding pipe nipples, R. G. Ferguson. burn, C. G. P. De Laval	877 754 751
lothes drainer, A. L. Eversmeyer	819 625 643
Adams. 460,	728 626 787 757
Collar and hames, combined horse, D. Paquet	654 696 814
Ooker, J. H. Gardner 460,	860 745 718
otton cleaner, seed, T. P. Townley	669
Jultivator, garden, J. A. Everitt. 460, Jultivator tooth, J. W. Kraus. 460, Jurling iron, G. L. Thompson 460, Curtain fixture, H. S. Wainwright 460,	633 828 709 937
oupling. See Car coupling. Thill coupling. Trace compling. Trank motion, variable, A. Kitson	,793 ,701
for, F. Rittenbouse 460, utting device, electrically controlled, L. S. 460. White 460. Damper, automatic drau ht regulating, C. D. Howard 460.	.69 5 .579
Authing device, electrically controlled, L. S. White	687 795 752
Direct-acting engine, H. G. Williams460,616, 460, Dish pans or other vessels, stand for, M. C. Pow-	,617
ell. 460, Dish washer, F. W. Hoppe. 460, Display stand, E. A. G. Kurth. 460, Document box, Andrews & Jenness. 460, Door opener and closer, J. Finck. 460, Dress shield, I. B. Kleinert. 460,	876 768 820
Dress Sheid, I. B. Kleinert. 440. Drill. See Jeweler's drill. Drilling machine, F. H. Richards. 460. Saves troughs, machine for forming, J. Klein. 460. Electric motors, regulating the speed of, M. J. Wightman. 460.	,692 ,584 .891
Gg separator, J. F. Kennedy	,606 ,614
Blectric solenoids, core for, J. T. Williams. 460 Ellectric switch, C. Wirt. 460 Ellectric wire conduit, W. Vogler 460 Electricalarm, H. P. Smith 460	,926 ,618 ,607 ,895
Slevator, See Water elevator. Elevator controlling device, J. McAdams	,675 ,603
Electric motors, regulating the speed of, M. J. Wightman	,788 ,851
Engineer's slide rule, W. Cox	,930 ,762 ,93 1
Braser and pencil sharpener, combined, G. W. Wasbburn	,608 ,702
relting machine, C. A. Whipple	,805 ,565 ,573 ,913
Firearm, magazine or single-loading, A. W. Sav- age	,786 ,647 ,810
rrearm, magazine or single-losating, A. W. Savage. ge. 460 Fire escape, I. Mills. 460 Fish tank for aquarium, G. P. A. Gunther. 480 Flood gate, T. F. Emans. 460 Floor set, N. B. Marston. 460 Flour bolting machine, J. M. Finch. 460 Fruit picker, J. H. Woodward. 460 Fruit stoning machine, J. S. Briggs. 460),894),790),915),903),740
Furnace. See Heating furnace	•
T shavings to, Scott & Sheafor	,717 ,593 ,657 ,898
Gate, M. Yakley	,622 ,598
Grassware. Herhod of and addaratus for engrav-),632),670),911
washing and separating, W. J. Tanner	0,722 0,640 0,919
Grain elevators, power transmission for, D. A. Robinson 460 Grain sampler, J. M. Stacy 460 Grain sampler, J. M. Stacy 460 Grain separator, McGill & Ryan 460 Grease trap or intercepter, T. Griffiths. 460),661),666),666
Grease trap or intercepter, T. Griffiths),673),803),649
Grooving machine, C. E. Thurlow),804),855),836
Harvesters, finger beam attachment ifor, H. P. Galligan),638),612),659
Heating and ventilating apparatus and system, 46 J. A. Skilton 46 Heating furnace, J. N. Hersh 46 Heel nailing machine, G. H. Cogs well 46	0,684 0,811 0,560
Heli seal beating machine, w. work),589 0,678 0,708
er. Gas bolder. Mop bolder. Rein holder. Sash holder. Ticket holder. Typewriter copy	0,853
Hook. See Whiffletree hook. Horses, wearing pad for, J. E. Hayward	0,922 0,925 0,924
Indicator. See Cash indicator. Switch indica-	0,653 0,700
Ingots for seamless plated wire, making, G. U. Meyer	0 ,920 0 ,921
son. 46 Insulation for electric wires, J. R. Markle 46 Iron. See Curling iron. Sad iron. Jack. See Lifting jack, Jeweler's drill, L. & F. Claxton. 46 Joint. See Belting joint. Rall joint.	0,725 0,713
Knife. See Bread knife. Knife guard, C. S. Wright. Knob spindle fastener, C. F. Gariand. Lace fastener, shoe, C. Babcock. 60 Ladie, R. W. Grace. Thompson. 40 Latchman for, G. L.	0,816 0,575 0,693
Lamp, electric arc, H. W. Libbey. 46 Lamp electrode, arc, H. W. Libbey. 46 Lamp, electrode, arc, I. L. Roberts. 460,5%, 46 Lamp pencil, arc, I. L. Roberts. 460,5%, 46 Lamps, electric arc, 1 Experts. 460,5%, 46 Lamps, electric arc, 1 Experts. 460,5%, 460,	0,587 0,680 0,597 0,59 5
Lathing, metal, C. H. Curtis	0,850 0,783
Lifting lack, A. P. Routt. 46 Line, hydraulic, J. H. Wright Lock, See Car door look, Hinge look, Permutation lock,	0,760 0,697
tation lock. Lock, J. T. Cole	10,561

252	Scientifi.
oom, narrow ware, O. W. Schaum	0.662 Trunk, convertible, Ripple & Williams
Lub icator. See Axle lubricator. Italipouch deliverer, A. Kimber. 460 Italing case, E. J. Kra etzer. 480 Italing or crank pins, device for truing up. R. C.	1,662
	Um brella or parasol, C. E. Metzger. 46 9,884 Valve for compound engines, starting, F. W. Johnstone
Mat. See Picture mat. Mattress, woven wire, T. Burdick	Johnstone 46 Valve for inflatable wheel tires, air, E. R. De Wolfe 46 Valve gear, engine, S. T. Bruce 46
Mechanical movement, Williams & Lash	,577 Valve gear, engine, S. T. Bruce
Metal cutting machine. W. B. Hammond 400 Meter. See Millampere meter. Middlings nurifar H. W. Stope Jr. 460	1.611 Valve. steam-actuated, W. Franks
iill. See Kolling mill. iillampere meter, L. D. McIntosh	Velocipede, T. B. Jeffery 46, 1850 Vent, automatic, M. Anthony 46, 1858 Vent, automatic, M. Anthony 46, 1858 Vent, automatic, M. Anthony 46, 1858 Vent, M. Anthony 46, 1858 Ve
dotor. See Spring motor. Wave power motor.	Wagon, dumping, T. Hill
tal making machine, wire, J. R. Hoskin 400 let for horses, fly, E. V. Stryker 460 lut making machine, J. H. Burdick 460	1,353 Wash boiler, C. F. Haussler. 46 1,353 Washer. See Dish washer.
uts, manufacture of, J. H. Burdick	1,554 Washer. See Dish washer. 1,902 Washing machine, A. J. Stasey
4ill. See Kolling mill. 4illampere meter, L. D. McIntosh. 466 4op bolder and wringer, L. Pelton. 466 4otor. See Spring motor. Wave power motor. 4usical instrument, W. M. Jewell. 466 4sil making machine, wire, J. R. Hoskin. 466 4sil to horses, fly. E. V. Stryker. 466 4st for horses, fly. E. V. Stryker. 466 4st tut making machine, J. H. Burdick. 466 4st tut making machine,	1,732 Watch bow fastener, F. Mink
Pan. See Evaporating pan. aper box, angular, D. S. Clark	Wave power motor, H. P. Holland
ann. See Evaporating pan. aper box, angular, D. S. Clark. aper fixture, toilet, Grosvenor & Holmes. aper weight and envelope cutter, combined, F. O. Paige. arcel carrier, A. Edgar. 460 Bassencer registers exist for use in connection	Whittletree houk, A. B. Neiman. 40,756 Windmill tower, H. C. Addis 46,1772 Wire, drawing, S. L. Mershon 46
with A Gaiardo 460	1719 Wire pleted G E A Knight
eattern. See Shoe pattern. eanuts from the vine, device for picking or stripping, J. T. Stewart. 40 encil sharpener, H. J. Miller. 46	Wire swaging machine, W. H. Daytor
Pencil sharpener, B. Pickering	1,658 Wrench. See Pipe wrench. 1,559 Wrench, T. F. Vandegrift. 40 Writing and moistening device, combined A. H.
wards	0,570 Stevens
lcker dee Fruit picker.	DESIGNS.
icture inst, J. Searvogle	Badge, J. D. Perry
branches to, P. Eley	Paper fasten er, G. W. McGill 21,098, 9,880 Photographic card, C. A. Wright
Montecino. 460 lanter and fertilizer distributer, seed, J. M. Crout. 460 lanter attachment, corn. S. M. Bowman. 460	Powder sprinkler, C. F. Redich
lanter, corn, H. C. Lohff	9,588 Stamp handle and base, rubber, W. E. Banning 9,824 Stove, J. S. Van Buren 1,590 Tassel. W. E. Oebrle
Hanter and Iertilizer distributer, seed, J. M. 460 Lanter attachment, corn, S. M. Bowman 460 Lanter, corn, H. C. Lohff 460 Lanter, L. C. Lohff 460 Lanter, L. C. Hebert 460 Lanter and Iertilizer distributer, seed, J. M. Lanter and Iertilizer distributer, S. M. Bowman 460 Lanter and Iertilizer distributer, S. M. Bowm	1,548 Tobacco plug, D. Harris
ost. See Fence post. Telegraph or other post. reserving compound, J. M. & T. J. Gillihan 460	0,861 TRADE MARKS
rinting surfaces, producing copper or other like, J. G. Garrison. kg firiting wood signs, press for, Beach & Palm. kg imp, duplex steam, L. F. Voisard. kg imp apparatus, oil well, G. Allen. kg ing apparatus, oil well, G. Allen. kg ing lont, R. J. Colvin. kall joint, R. J. Colvin. kall way conduit, underground, E. E. Keller. kg illway conduit, underground, E. Keller. kg illway driving mechanism, cable, J. Walker. kg illway electric, I. Robbins. kg illway electric, I. Robbins. kg	0.635 Antiseptic and detergent compound, Reed &
ump, dupjex steam, L. F. Voisard	Antiseptic and detergent compound, Reed & Cartrick
uzzle, A. N. Burbank	1,848 Cigars, D. Mendia & Co
ailway driving mechanism, cable, J. Walker	1794 Philip Mills. 0,887 Dextrine, P. Bauer & Co. 1740 Gelatine, C. B. Knox
allway rail, B. F. Curtis	Lamp and gas axtures, shades for, w. Foerster &
controlling, J. N. Strong	Weinberg & Mann Medical appliances, hygienic, R. B. Duty
wilway traffic control, telegraph block system of Couches & Rowe	Remedy for cutarrial affections and other mucous
allways, rail connection for electric, M. J. Wightman	a a a diseases. I H. Siimser
Wightman 40 aliwaya, system of electrical signaling for, De Jager & Joutman 40 ake. See Pay rake. 40 40 40 40	0.779 Shampoo cream, E. Butch. Soap, laundry, Detroit Electric Soap Company Tin plates and roofing tin, W. Gilbertson & Com-
teamer. C. B. Rohlard	pany
ein holder, Shaw & Atwood	L. Dodge
for, metal, F. Nevegold 46 for, metal, F. Nevegold 46 ad iron, G. Heffel 46 afe. W. H. Reynolds 46 and conveyer attachment, C. G. Cohen 46	0,882 Whisky, T. E. Pepper
ife, W. H. Reynolds 46 and conveyer attachment, C. G. Cohen 46	(1,986) A printed copy of the specification and drawin (1,060) any patent in the foregoing list, or any patent in office (1,986) issued since 1863, will be furnished from this office
ash cord rastener, J. P. Gardner. 40 sush holder, G. W. Morstatt. 46 w machine, swing, E. F. Autenrieth. 46	0.839 25 cents. In ordering please state the name and nu 0.630 of the patent desired, and remit to Munn & Conference of the patent of the pate
salt conveyer actachment, C. G. could salt conveyer as a salt cord fastener, J. P. Gardner. 46 salt holder, G. W. Morstatt. 46 aw machine, swing, E. F. Autenrieth. 46 affold horse, G. Kautz. 46 cales, poise and price scale attachment for weighing, J. H. Milburn. 46 salt see Autringe aged 1	0,689 Canadian patents may now be obtained by the open of the inventions named in the
eparator. See Egg separator. Grain separator. Ore separator.	If complicated the cost will be a little more. For instructions address Munn & Co., 361 Broadway.
ewing machine, book, F. R. Kahnes	10rk. Other foreign patents may also be obtained.
art. 46 ewing machine welt guide, C. Hatch, Jr. 46 hafts register and recorder for revolving, Pomeroy & White hears, C. W. Hansen. 46 heet metal drawing die, J. W. Bodge 46 heet metal drawing die, E. Norton 46 heet metal drawing die, E. Norton 46 heet metal drawing die, E. Norton 46 heet, Pastry, M. S. C. Hartmann 47 hoe, A. Jarrows 47 hoe fastering, J. Dickson, Jr. 47 hoe shunk making machine, J. Hyslop, Jr. 46 hoes, etc., composition of matter for soles of,	Hdvertisements.
hears, C. W. Hansen	0765
neet metal drawing die, E. Norton 46 helf, pastry, M. S. C. Hartmann. 46	1334 Back Page, each insertion \$1.00 a
noe fastening, J. Dickson, Jr. 46 hne pattern, J. P. Eaton. 46	0.43 words per line. This notice shows the width of the
hoes, etc., composition of matter for soles of, Brown & Blackwell	of the same of the same rate per agate line, by mea tisements at the same rate per agate line, by mea ment, as the letter press. Advertisements mureceived at Publication Office as early as That working work's issue.
Brown & Blackwell 46 hutter spring, A. P. Merrill 46 lik, apparatus for making artificial, H. De Chardonet 46	0.629
ilk, apparatus for making artificial, H. De Chardonnet. 46 ink trap, J. B. Ca roll 46 kein lacer, R. Simon liding gate, A. E. Bright. 46	USE A BAMANT WALL PLAST
lip, label, card, or letter file, J. L. Gilman	0.862 Lis Hard, Dense, and hesive. Does not check or cluster to wind, w
lip, label, card, or letter file, J. L. Gilman. 46 now from road beds, apparatus for removing, J. F. Seery. now plow, H. A. Ruggles. 46 ole cutting die, R. R. Gibbs. 46 pectacles, O. J. Halbe. 46 pectacles, O. J. Halbe. 46	0.081 0.071 0.074 0.074 0.074 0.074 0.074 0.074 0.074 0.074 0.074 0.074 0.074
pike extractor, J. E. Stout. 46 pring. See Bell spring. Shutter spring.	0.576 Feral use. Licenses granted for mixing using, and selling.
pectates, O. Halbe pike extractor, J. E. Stout. 46 pring. See Bell spring. Shutter spring. pring motor, I. S. Patton. 46 talk cutter, R. N. Brownlee. 46 tamp, time and calendar, E. W. Morton. 46 tand. See Display stand. 460 828 46 tand. 5ee Display stand. 460 828 46	0,655 Address ADAMANT MFG.
tand. See Display stand. team boiler, J. Baird	0,906 Syracuse. N
revre 40	0,100
teno-telegraphic apparatus, A. Wood	O.619 A Peeck
tone pavements, apparatus for cutting or mark-	0,821 LAIHE
	90,644 Seroll Saws, Catalog Free Saws, Ligities of all
J. Sweeney	90.764 Saws, Latites of all of Machine Mortiners. Saws, Latites of all of Machine Mortiners. Samson Falls, Machine Mortiners.
& Mason. 46 tra Wassel. 46 tringed instrument, C. Gumbel. 46 suppository macnine. Wood & Howarth. 46	
Suppository macnine. Wood & Howarth 46 Burcingle, H. Ellsworth 46 Burveyer's transit, J. A. Brown 46	NI OFELIAL NUTICE!
Switch. See Electric switch. Switch indicator, automatic electric, E. W. Had-	entitled,
ley 40 Table. See Billiard table. Fag. key, E. W. Hall 40 Fank. See Fish tank.	"Recent Improvements in Rock Drills," mailed free to any one who will cut out this advertisement and mail it to with his name
l'elegraph or other post, iron or steel. W.E.Ped-	and address.
Pent and knapsack, combined shelter, H. Stiter. & Phill coupling, F. M. Mitcheli. &	10,590 Fine Tan h: n - n -
Chill coupling D Museum	Fine Taps, Dies, Heamers, 1
Phill couplings, anti-rattler for, W. H. Bodfish	00,000
Thill couplings, anti-rattler for, W. H. Bodfish Picket holder, W. J. Barron. Pin, apparatus for coating plates with, Taylor & Struve Pongs, roofing, H. Beirwirth Jr	60,627
Pool handle fastening, D. Lumbert	00,829 00,800 Lightning and Green River Screw Plate
Telegraph, printing, M. G. Farmer. Telegraph, printing, M. G. Farmer. Tent and knapsack, combined shelter, H. Stiter. Thill coupling, F. M. Mitchelt. Thill coupling, D. Murray. Thill couplings, and:rattler for, W. H. Bodfish. Ticket holder, W. J. Barron. Ticket holder, W. J. Barron. Tin, apparatus for coating plates with, Taylor & Struve Tongs, roofing, H. Beirwirth, Jr	00,829 00,800 Lightning and Green River Screw Plate

	•		(
		2	
.		400 000	ı
3	Trunk, convertible, Ripple & Williams Tubing, sheet metal, W. H. Noble Twist drills, marking, G. L. Holt	460,739	
9	Tubing, sheet metal, W. H. Noble	460,630	
2	Typewriter copy holder, J. Chase	460,005	
š	Tongwriting maching D C Way	460 911	
1	Typewriting machine, D. C. Way. Umbrella or parasol, C. E. Metzger. Valve for compound engines, starting, F. W.	460,791	
4	Valve for compound engines, starting, F. W.	200,102	
•	Johnstone	460.581	١
2	Johnstone		
)	Wolfe	460,714	ı
7	Valve gear, engine, S. T. Bruce	460,628	ı
6	Valve operating device, elevator, H. A. Beidler	460,934	ı
į	Valve. steam-actuated, W. Franks	460,858	ı
j	Vehicle brake, N. Cunningham	460,564	ı
,	Vehicle brake, J. T. & G. Schuetz, Jr	460,890	ı
ı	Vehicle wheel, J. B. Lott	400,004	ı
•	Velocipede, T. B. Jeffery	460,641	ı
ı İ	Vent, automatic, M. Anthony	460 671	ı
3	Vise C. Wies	460,613	ı
	Wagon, dumping, T. Hill	460.879	ı
3	Vise, C. Wies. Wagon, dumping, T. Hill	460,777	ı
3	Wagob, platform, T. Hill	460.870	ı
5	Wall paper exhibiting machine, T. M. Robertson.	460,727	ı
3	Wash boiler, C. F. Haussler	460,796	ı
•			ı
3	Washing machine, A. J. Stasey	460,835	ı
3	Watch bow fastener, J. J. Hogan	460,872	ı
	Watch bow fastener, F. Mink	460,019	ı
3	Water elevator, vacuum. D. P. Burdon	460 815	ı
٠,	Wave power motor, H. P. Holland	460,812	ı
7	Wheel. See Vehicle wheel. Water wheel.	400,012	ı
5	Whiffletree attachment, vehicle, W. F. Henry	460.823	ı
	Whiffletree attachment, vehicle, W. F. Henry Whiffletree hook, A. B. Neiman	460.755	ı
3	Windmill tower, H. C. Addis. Wire, drawing, S. L. Mershon.	460,837	ı
2	Wire, drawing, S. L. Mershon	460,726	ı
	Wire looping tool, L. S. Flatau	460,916	ı
9	Wire, plated, G. E. A. Knight	460,750	ı
	Wire stretcher, J. W. Peterson	460,885	
7	Wire swaging machine, W. H. Daytor	400,566	
3	Wire, trundler for speeded, C. R. Smith	460 952	
	Wroneh See Pine wroneh	400,002	
3	Wrench T F Vandegrift	460 694	
	Wrench. See Pipe wrench. Wrench, T. F. Vandegrift. Writing and moistening device, combined, A. H.	200,002	
0	Stevens	460,602	
	=		

3	DESIGNS.	
١	Badge, J. D. Perry Dish, E. M. Pearson.	21,0
,	Monument, F.S. Ingoldsby	21.0
,	Photographic card. C. A. Wright	21.0
	Powder sprinkler, C. F. Redlich	$\frac{21.1}{21.0}$
ĺ	Spoon, H. M. Wilson	21,10
į	Stove, J. S. Van Buren	21,10
)	Tassel, W. E. Oehrle	21.0 21.0
ś	Type, font of printing, H. Ihlenburg	21,10

TRADE MARKS.

	Carnrick	20.19
	Brandy, J. Robin & Co	20.18
	Cheese, A. Ethridge & Co	20,18
	Cigarettes and cut tobacco, P. R bell20,203,	
	Cigars, D. Mendia & Co	20,20
	Cotton goods, such as lawns, cambrics, etc., King	
١	Philip Mills	20,19
i	Dextrine, P. Bauer & Co	
١	Gelatine, C. B. Knox	20.19
ļ	Lamp and gas fixtures, shades for, W. Foerster &	,
i	Co	20.19
i	Liniment for sprains, lumbago, lameness, etc.,	
ġ	Weinherg & Mann	20.19
•	Weinberg & Mann	20,18
	Photographic plates or films, G. Cramer20,185,	20.18
	Powder for the prevention of odors from perspir-	
	ing feet, L. A. Kimberly	20,19
	Remedy for catarrhal affections and other mucous	-
	diseases. J. H. Sumser	20,19
,	Remedy for rheumatism and gouty diathesis,	•
	Reed & Carnrick	20,19
	Shampoo cream, E. Butch	20,19
	Soap, laundry, Detroit Electric Soap Company	20,18
•	Tin plates and roofing tin, W. Gilbertson & Com-	
١,	! pany	20,20
	Tonic, liniment, cough strup, pills, mineral bath,	
	and hair restorative, Wolfe Chemical Company	20,19
ľ	Toothache drops, liniment, and cough sirup, W.	
	L. Dodge	20.18
١	Whisky, T. E. Pepper	20,20
i		

A printed copy of the specification and drawing of ny patent in the foregoing list, or any patent in print spued since 1823, will be furnished from this office for 5 cents. In ordering please state the name and number f the patent desired, and remit to Munn & Co., 361 gradway, New York.

entors for any of the inventions named in the fore-oing list, provided they are simple, at a cost of \$40 each, f complicated the cost will be a little more. For full astructions address Munn & Co., 361 Broadway, New fork. Other foreign patents may also be obtained.

Mdvertisements.

Inside Page, each insertion - - 75 cents a line Back Page, each insertion - - - - \$1.00 a line

The above are charges per agate line—about eight words per line. This notice shows the width of the line, under the same rate per agate line, by measurement, as the letter press. Advertisements must be eached at Publication Office as early as Thursday norning to appear in the following week's issue.

USE A BAMANT WALL PLASTER



It is Hard, Dense, and Adhesive. Does not check or crack, It is impervious to wind, water, and disease kerms. It dries in a few hours. It can be applied in any kind of weather. It is in kenders, the same proposed in the

Address ADAMANT MFG. CO. 309 E. Genesee St., Syracuse, N. V.



SPECIAL NOTICE!

Fine Taps, Dies, Reamers, etc.

WILEY & RUSSELL MFG. CO., Greenfield, Mass. New York Agency, 126 Liberty Street.

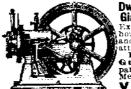
THE NEW MODEL "HALL."

PERFECT TYPEWRITER,
BEST MANIPOLDER,
LET Terms to Agents Liberal.

PORTABLE, INEXPENSIVE.
WRITES ALL LANGUAGES.
Send for Catalogue and Spectmens of Work.

Address N. TY PEWRITER CO.
611 Washington St., Boston, Mass.

STATIONARY and PORTABLE. All Sizes.



Dwarfs in Size, but Giants in Strength. Expense one cent an book per horse power land requires but little fattention to run them.

Every Engine Guarante ed. Full particulars free by mail Mention this paper

VAN DUZEN

GAS & GASOLINE ENGINE CO. Cincinnati, O.

Steam! Steam!

Quality Higher, Price Lower. or Strictly Cash, Complete Fixtures except Stack. 2-Horse Eureka Boiler and Engine, - \$145 Other sizes at low prices. Before you buy get our prices.

B. W. PAYNE & SONS, Drawer 56. ELMIRA, N. Y.

WANTED,

To make, by our special machinery, square or V threaded steel nuts, six to ten times diameter. Send sketches of wants.

RAND DRILL CO., 23 Park Place, New York.

the Great Lakos and the Atlantic Seaboard. By E. L. Corthell. A discussion of the question of the practicability of forming an enlarged waterway from the Northwest to the Atlantic Seaboard and Europe. Contained in Scientific American Supplement, No. 809. Price 10 cents. To be had at this office and from all newsdealers. ENLARGED WATERWAY BETWEEN

Atkinson "Cycle" Gas Engine Uses less gas per H. P. than any other.

Has an orking stroke at every revolution of the crank. The steadless, most economical, and easiest to start of any gas engine made.

Henry Warden, Manuf'r, 824 Allegheny Av., Phila., Pa. Sizes fro





[In press, to be issued about December 1, 1891.]

→ The Scientific American

Cyclopedia * →of Receipts,

NOTES AND QUERIES.

650 pages. Price \$5.

This splendid work contains a careful compila-tion of the most useful Receipts and Replies given in the Notes and Queries of correspondents as published in the Scientific American during nearly half a century past: together with many valuable and important additions.

over Twelve Thousand selected receipts IVES, Blakesier & Williams ID., New York City. ful arts being represented. It is by far the most comprehensive volume of the kind ever placed before the public.

The work may be regarded as the product of the studies and practical experience of the ablest chemists and workers in all parts of the world; the information given being of the highest value, arranged and condensed in concise form, convenient for ready use.

Almost every inquiry that can be thought of, relating to formulæ used in the various manufacturing industries, will here be found answered.

Instructions for working many different processes in the arts are given. How to make and prepare many different articles and goods is set

Those who are engaged in any branch of industry probably will find in this book much that is of practical value in their respective callings.

Those who are in search of independent business or employment, relating to the manufacture and sale of useful articles, will tind in it hundreds of most excellent suggestions.

MUNN & CO., Publishers,

361 Broadway, New York.

Scientific American Office,

LEARN WATCHMAKING, etc., of W. F. A. Woodcock Write for terms and particulars.



FOR SALE.—A Foundry and Machine Plant, situated near Newark, N. J., consisting of about 1% acres of ground, with buildings thereon. Radicoad passes within 37 feet of the property. Will be sold on favorable terms. Address J. O. B., P. O. Box 948, New York.

STEEL TYPE FOR TYPEWRITERS



\$3 PRINTING PRESS. Do all your own printing. Save logue for two stamps. Kelsey & Co., Meriden, Conn.



RECEIVER'S SALE. Axe Patents, etc., at Public Auction.

By order of the Superior Court for Hartford County, Connecticut, in the case of Vail vs. Hammond, the undersigned, as Receiver, will sell at public anction, at 2 o'clock on Wednesday afternoon, November 18, 1891, at Number 75 Court Street, New Haven, Conn., the following American and Foreign Letters Patent, granted and issued to Henry Hammond, of said New Haven, can ventor, the legal title to said patents having been conveyed to the undersigned pursuant to order of Court, To wit:

Towit:

PATENTS GRANTED BY THE
UNITED STATES.

FOR "IMPROVEMENT IN THE MANUFACTURE OF AX ES;" April 28, 1985, No. 316,617; July
7, 1885, No. 321,644; and July 23, 1889, No. 407,591. For
"AXE BLANK: " April 28, 1885, No. 316,618; and
January 26, 1886 No. 324,948. For "FORGING MACHINE: " July 28, 1885, No. 322,628; July 28, 1885, No.
322,522; July 28, 1895, No. 322,980; and April 2, 1885, No.
326,644. For "PROCESS OF FORMING
EDGE OF AXES;" September 22, 1885, No. 326,645.
FOR "NIPPERS;" August 16, 1887, No. 308,470.

PATENTS GRANTED BY THE GOVERNMENT OF GREAT BRITAIN.
FOR "IMPROVENENT IN THE MANUFACTURE OF AXES;" July 9, 1855, No. 8:11]; and January 22, 1889, No. 1,766. FOR "AXE BLANK;" February 5, 1866, No. 1,714. FOR "FORGING MACHINE;" April 2, 1889, No. 5 571.

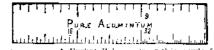
PATENTS GRANTED BY THE DO-MINION OF CANADA.

For "IMPROVEMENT IN THE MANUFACTURE OF AXES," October 23, 1855, No. 22,676; November 21, 1885, No. 22,866; and November 24, 1885, No. 22,872.

After selling the Letters Patent, there will also be sold large Machines, Dies, Tools, Patterns, Models, and material used in work performed under said patents.

This sale affords opportunity for obtaining exclusive control of a valuable system and associated improvements for the economical manufacture of Axes and other Tools. Terms and conditions announced at sale.

JAMES P. ANDREWS, Receiver.



ALUMINUM A Pocket Hale made of this woulderful metal, 3 inches long, finely graduated, free by mail for 25c. T. F. Welch, 65 sudbury St., Buston



THE WORLD AND GLEN CAMERA

Price \$1.00. By Mail, \$1.15.

Illustrated and described in the SCI. AM., July 4, 1891. Makes pictures 2½x2½ in. With each camera is included a complete set of chemicals and fullapparatus, 8d y plates, 1 package blue processpaper,1 package card mounts, 1 printing frame, 2 japanned trays, etc. A complete instruction book with each camera Ivan Diakoglos 9, Mullume 10, 294 Broadway.



NICKEL CASTINGS FOR ALL PURPOSES.



Our new General Circular "S. A.," showing specimens of all ou work, is now ready. Send stamp and particulars for estimates.