method of drawing a perpendicular to a straight line for the purpose of

Batt

20*ft*

15.58

squaring foundations, etc. From the corner of the foundation take two lines respective ly 15 and 20 feet. and connect them by a line of 25 feet: the

angle included between the two shorter lines will be a right angle. The numbers 3, 4, 5, or, as in the present case, their multiples 15, 20, 25, are taken to measure respectively the perpendicular, base, and slant side of the triangle. It is obvious that any scale may be used so long as the ratio of 3, 4, 5, is observed.

(37) J. H. asks what kind of iron to use in making cast iron armatures. A. Soft gray iron.

(38) F. H. C. asks: How can I etch cheaply on glass to imitate ground figures or transparent figures on a ground background? A. For this purpose the sand blast is now generally used; the glass is covered with a film of wax or varnish, through which, with suitable needles or gravers, is etched the design: a fine sharp silicious sand impelled by a current of air is then directed from a suitable jet over the prepared surface, and the etching is accomplished in a few minutes. Glass is etched also by hydrofluoric acid; the plate may be prepared as for the sand blast, and placed face downwards over a shallow leaden tray, containing powdered fluorspar moistened with strong oil of vitriol and gently warmed; the gaseous hydrofluoric acid given off rapidly Is it the water in the pipes made by condensed steam etches the portions of the glass not protected by the wax or varnish. Hydrofluoric acid should be used with A. The noise is due to both causes in some degree, but great care.

(39) L. H. writes: I have seen it asserted that the parasites that infest the Asiatic tiger's paw are an exact miniature image of itself. Is this so? A No

melting brass in a common sand crucible for castings of moderately cool water. A little common salt is some a pound or so in weight for a small engine. A. You may melt small quantities of brass in any common stove having a good draught, using a coal fire. You may use borax as a flux.

as described in Figs. 4 and 5, SUPPLEMENT 142, must the constructed to discharge 1,000 gallons of water per mindiaphragm be entirely free, or can it be punched and the screws which secure the flauge pass through it? A. The diaphragm should not be punched. 2. In new form much better to exterminate roaches, moths, etc., than of telephone in No 20, current_volume, must there be a anything else. It will not hurt furniture in the least, battery in the circuit, or is the telephone sufficient to will evaporate, and can be easily applied. work it? A. A battery is required.

(42) J. M. B. asks: What will prevent the hairfrom falling out? A. Keep the pores of the skin ceived from the following correspondents, and open by frequent bathing and change of underclothing. Bathe the head with clean soft water, and stimulate the scalp with a moderately stiff brush morning and evening. weak solution of glycerin soap in dilute spirit of wine, of silica and 10 per cent of alumina, besides lime, magwith care to remove all traces of soap from the hair. Use no pomades or oils of any kind.

(43) B. H. P. asks (1) how to make malleable iron, such as used in wrenches. A. Malleable iron castings are made from mottled iron. They are cleaned by tumbling and then packed in iron boxes with alternating layers of rolling mill scale. The boxes are carefully luted and packed in an annealing furnace, where they are kept at a white heat for a week or more, and then allowed to cool gradually. 2. How is steel or iron other economic use at present than that of a filling for made to adhere to the face of the jaws of the wrench? cushions and pillows. The beauty of this silk like down A. By welding.

(44) J. G. E. asks: What is the highest column of water that can be raised from a well by means of a siphon pump with 60 lbs. steam, likewise a 1 inch column of water with 60 lbs. steam? A. Lift, from 26 to 27 feet.

(45) W. H. W. asks: 1. Is there any solution excepting rubber that will make cloth thoroughly waterproof, or at least withstand the attack of water for an hour or so? It should be applied by dipping the United States, and quite common, are nevertheless not cloth in the solution. A. Linseed oil boiled with a little abundant enough in a wild state to afford much of a wax and litharge is useful for some purposes. Cloth prepared with paraffin, balata gum, the gum of the asclet in cultivating them. pias or milkweed, naphtha solution of the dried pulp of the bamboo berry, anhydrous aluminum soaps (see pp 149 and 159, "Science Record," 1874), are also employed. 2. Is there any chemical that could be combined with the solution, imparting some property to the same for which rats or mice would have an antipathy so as to prevent their attacks? A. A trace of phenol will generally suf-

(46) J. L. asks: Is the balata gum softened by animal oils or fat? A. Yes.

(47) P. L. W. asks. What distance would a

(36) J. D. reminds us of an old and good inchindiameter, or a piece of gas pipe the same dimensions, both being set upon end? A. The round iron,

> (50) W. M. B. writes: 1. I have one eighth inch basswood, cherry, butternut and walnut. Which do you advise for the sounding board of a microphone and Hughes telephone? A. Either will do, but pineor spruce is better. 2. Would a glazed earthen jar do for the outside of battery described in SCIENTIFIC AMERICAN SUPPLEMENT, No. 149? A. Yes. 3. Could I make insulated wire myself? If so, how? A. Wire may be insulated by giving it a coat of shellac varnish and allowingit to become dry and nearly hard before : Letters Patent of the United States winding.

(51) W. H. S. asks how to satin finish tubing like sample sent, A. The specimen has been electro-plated with silver in the usual manner, and the electric current then reversed for a few moments, thus redissolving a portion of the plate, the remainder presenting the peculiar satin like luster.

(52) S. W. C. asks: Has carbon for telephone purposes ever been made by subjecting the black turnished from this office for one dollar. In or deposited by a flame to a heavy pressure? A. Yes. Edison's carbons are made in this manner.

(53) "Hardware" asks: 1. Where is best to take hot air in a room, at register near ceiling or in floor? A. At or near the floor. 2. Where is best place to have ventilation, near floor or near ceiling? A. If connected with a flue having a good draught it should be near the floor.

(54) R. W. J. asks: What causes the cracking noise in the pipes of a steam heating apparatus, when a fire has been started to warm up the building? or is it the expansion of the pipes from being heated? principally to the water, which produces violent blows.

(55) C. N. A. asks how to temper steel tools for working on stone or similar work. There is some preparation which is put in water which accomplishes the purpose when the steel is heated and plunged in. (40) J. G B. asks if there is any way of A. Heat the tools to a cherry red, and plunge in clean, times added to the water.

(56) G. B. asks: 1. Is the height to which water is raised by a hydraulic ram measured from the ramitself or from the spring from which the supply (41) F. & Co. ask: 1. In making a telephone comes? A. From the ram. 2. Can a hydraulic ram be ute? A. Yes.

(57) L. D. writes that benzine will answer

MINERALS, ETC.-Specimens have been reexamined, with the results stated:

M. B. W.-No. 1 is a silicious clay-it might be useful in the manufacture of some grades of pottery, etc. The head should be occasionally cleansed with a No. 2 is a ferruginous shale-contains about 80 per cent nesia, iron oxide, and water.-W. S.-It is fibrous talctalc of good quality is in considerable demand for paper making and other purposes .- W. G. H.-The sand contains no precious metal-the glittering particles are mica.-S. F.-The specimen you send consists of a mass of the long hairs which have been attached to the seeds of the "milkweed" (asclepias), or, as it is sometimes called, from the silky nature of these appendages, "silkweed." We believe that this material is put to no cushions and pillows. The beauty of this silk like down long ago attracted attention, and many unsuccessful attempts have been made to put it to some practical use in the arts; but, as you have probably noticed, the hairs are both brittle and weak, and an examination with a lens will show that it wants the roughness and angularity necessary to fit it for being spun like other fibers. It has, however, been mixed with cotton and woven into fabrics having a silky luster and capable of taking brilliant dyes, but the manufacture has never been prosecuted. The plants, though widely distributed over the supply, and we believe no experiments have been made

> Any numbers of the SCIENTIFIC AMERICAN SUPPLE-MENT referred to in these columns may be had at this office. Price 10 cents each.

COMMUNICATIONS RECEIVED.

The Editor of the Scientific American acknowledges with much pleasure the receipt of original papers and contributions on the following subjects :

Manufacture of Porous Cups for Tyndall Grove Battery. By W. H. S.

Cylinder Condensation. By F. F. H. Sa

Pipe, manufacture of.-W. Radde, N. Y. city Potato digger. - L. A. Aspinwall, Albany, N. Y. Refrigerator.-J. A. Whitney, N. Y. city. Screw cutting machinery.-C.D.Rogers, Provider

Sewing machine.-Wilson Sewing Machine Con Chicago, Ill. Wire machinery.-C. D. Rogers, Providence, R. 1

(OFFICIAL.]

INDEX OF INVENTIO FOR WHICH

Granted in the Week Ending

October 15, 1878.

AND EACH BEARING THAT D [Those marked (r) are reissued patents.]

A complete copy of any patent in the annexe including both the specifications and drawings, please state the number and date of the patent d and remit to Munn & Co., 37 Park Row, New York

6	Animal trap, B. H. Noelting	209.069	Pa
1	Azle box, car, J. N. Smith	208,993	Pa
9	Axle skein, vehicle, L. A. Winchester	209,096	Pa
ľ	Ballot box, W. L. Barnes		Pe Pe
l	Bed bottom, F. W. Mitchell	208,917	Pe
	Bed bottom, spring, H. Pitcher		Pi
	Bed lounge, H. S. Carter Bed, spring, A. J. Lattin	209,019	Pla
	Bedstead fastening, L. P. Clark	200,513	\mathbf{P} la
;	Boilers, low water alarm for steam, G. H. Crosby.	208,962	Pla
	Boot and shoe counter support, etc., J. Wissen	208,943	Pl
, ?	Boot jack, C. Tyson		Pi
	Brake, vacuum, F. W. Eames	208,895	Pl Pl
	Bran scourer, R. Tyson		Pl
	Broom, M. T. Boult		Ple
3	Brush, A. C. Estabrook	208,898	Pl
•	Camera, J. W. T. Cadett		Pr
3	Can, metallic, J. Broughton		Pr
•	Can, oil, A. E. Gardner		Pr
,	Can, sheet metal, A. N. Lapierre		Pr
•	Car bumper, S. M. Cummings (r).		Pu
1	Car coupling, J. Simmons		Pu Pu
ı i	Car draw bar attachment, railway, J. H. Smitt		Ra
,	Car journal box, F. M. Alexander		Ra
	Car running gear, railway, J. C. Weaver Cars, dust deflector for, Morgan & Gilleland		Ra
,	Carbureter, air, G. Reznor		Ra
	Carriage, C. H. Palmer, Jr.		Ra
1	Carriageseats, corner iron for. L. Emerson	208,971	Ra
. 1	Carriage top standard, F. W. Whitney		Ro Ro
	Cartridge loading machine, G. S. Slocum		Ro
ł	Cartridges, machine for gauging, J.H. Gill		Ro
'i	Casting andirons, mould for, S. E. Jones		Sea
ŀ	Castingtemple rollers, mould for, J. B. Stamour.		Sea
!	Chair for children, high, J. Nichols (r) Chair, reclining, N. N. Horton		See
ł	Chalk, sharpener for tailor's, J. Butcher	208.955	Sev
1	Churn, J. H. Folliott	209,033	Sev
	Churn, reciprocating, L. B. Wilson	208,941	Set
. 1	Clasp, T. P. Taylor		Set
ŝ	Clock striking attachment, D. C. Wolf		Sev Sev
: :	Cock, steam, G. H. Crosby		Sha
	Coin holder, C. H. Carpenter		She
÷	Coin holder, B. McGovern		Shi
	Coin measure, C. H. Fuller		Sh
	Coke oven, W. H. Rosewarne		Sh
. 2	Combing machine, Rushton & Macqueen,		Sh
1	Cooler and filter, water, J. C. Jewett Cooler, water, G. W. Malpass		Sig
;	Cotton gin, J. B. Hull		Sin
1	Crucible machine, J. C. Clime		Sle
	Cultivator, J. C. Bean		Sle
1	Cultivator, B. H. Cross		Spi
	Cultivator, C. Nash		Spi
	Dental foil package, R. S. Williams	209,002	Spi
4	Dental plugger, W. G. A. Bonwill	209.006	Sp1 Sp1
1	Desk, H. E. Moon	208,919	Ste
1	Doffer combs, operator for, E. Wright		Sti
1	Draught equalizer, L. O. Brekke		Sto
1	Dredging machine, J. B. Eads Drill cleaner, grain, J. W. Lucas	208,099	Sto
1	Dummy, H. H. Baker	000 001	Sto
ŝ	Ear ring, W. P. Dolloff	208,968	Sto
1	Electric machine, dynamo, E. Weston	209,094	Stu Stu
1	Elevator, windlass water, J. Knipscheer	209,057	Su
1	End gate fastening, F. Rock	208,928	Sw
	Evaporator, fruitand vegetable, J. W. Powers		Tal
1	Excavating machine, J. T. Dougine Exercising machine, W. J. O. Bryon, Jr	208,895	Tal
1			Ta
ŝ	Exhaust nozzle, N. J. White Fabric cutter, Muehling & Davis	208,920	Tic
2	Feathers for dusters, G. M. Richmond	209,080	Tic
	Fence T Williams	209.095	To: Tre
1	Fence, picket, Terry & W. W. Green, Jr	209,089	Tu
÷	Firearm, breech-loading, H. C. Bull	209,010	Va
ŝ	Firearm, breech-loading, J. D. Coon		Va
Ì	Fire escape. V. Wohlmann Fire kindler, T. M. Benner	208,944	Va
ċ	Fire kindler, E. J. Norris	209,002	Ve
j	Fluting machine, C. G. Cabell (r)		Wa
į	Fork, W. H. Kretsinger		W٤ Wa
Ľ,	Fuel compressor, W. H. Rosewarne	208,929	wa Wa
i	Gasburner, pressure governing, J.N.Chamberlain	209,021	Wa
ł	Gas burners, apparatus for, A. L. Bogart	209.016	Wa
ł	Gate, C. D. & I. Haldeman		We
ł	Gate, J. S. Henshaw		Wi
ł	Gate, Nason & Wilson (r)	8.456	Wi
ł	Grain binder, M. A. Keller		Wı
ł	Grain separator, G. W. Earhart Gun, air, B. T. Babbitt		
1	Harness, neck yoke attachment for, J. S. Nelson.		
ļ	Harrow, sulky, S. C. Dix		Cig
	Harvester rake, J. Barnes		Cig
	Harvester reel, Hodges & Mohler	209,047	Dis
	Head light, locomotive, E. L. Hall	209.041	Gir
	Heels, turner for wooden, Prenot & Marchal		La
1	Hide and skin dresser, C Molinier		Liq
1	Hitching post, Thomas & Kuox		Ma
	Hoe, T. Weiss Hog cholera compound, M. Hemmingway		Ma Mu
	Horse collar, J. J. Crowley		Per
	Horse power, C. H. Baker.		Pla
ļ	Horsepower, A. B. Farquhar		Sm
i	Horse toe weight, J. W. Ropp	208.927	Wa
i	Ice, manufacturing, A. Albertson (r)	8,455	-
	Indicator, water level, E. Jerome		
	Journal, R. Macdonald	208,983	Car
	Journal bearing, W. W. Smalley	209,084	Cig
	Knife, chopping, W. Millspangh Knob attachment, door, J. F. Peacock	209,005	For
	Lamp holder, A. A. Noyes	209.071	Gro
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1			

	0	/ /
	Lamp bowl, F. Rhind Lamp chimney, nursery, E. Mecler	209,077 208,916
nce, R.I.	Lamp, miner's, W. Roberts Lamp, self-extinguishing, F. Rhind	209,082
ompany,	Lantern, J. H. Irwin	209,051
I.	Lantern, signal. H. E. Pond (r) Latch, B. W. Foster	209,034
	Lathe for turning regular forms, E. A. Marsh Lead, refining impure, N. S. Keith	
	Leather skiving machine, M. M. Clough Leather splitting machine, A. E. Whitney	208.959
NS	Loom temple, J. B. Stamour	209,101
	Lubricator, N. Seibert Lubricator, steam cylinder. N. Seibert	208,931
were	Marble, slate, etc., ornamenting, W. K. Lorenz Match dipping machine, A. R. Sprout	
	Meter, steam diaphragm, C. Holly	209,048
ATE.	Middlings bolt, M. Inskeep Middlings separator, G. T. Smith	208,936
	Musical instrument, E. P. Needham (r). Musical string instruments, key for, F. Z. Nicolier	
	Needle, J. Burrows Oat meal machine, Eberhard & Turner	209,018
ed list, will be	Ordnance, operating heavy, H. C. Bull	209,011
rdering,	Ore separator, P. Plant Oven, hot blast, Miles & Burghardt	
desired,	Package wrapper, G. V. Hecker Packing for piston rods. metallic, M. H. Gerry	
k city.	Pan cover, milk, C. C. Fairlamb Paper feeding apparatus, F. H. Lauten	208,900
. 209,068 . 208,993	Paper making machines, box for, C. Young	209,003
209,096 208,951	Paper pulp, reducing wood to, Cornell & Tollner. Peach parer, W. S. Plummer	
208,917	Pen, puncturing, J. M. Griest Pessary, medicated. T. N. Berlin	208,905
208,987 209,019	Pipe, smoking, W. H. Caddy	208,886
208,979	Planter, corn, Brigham & Flenniken Planter, grain, C. E. McBonn	208,914
208,962 208,943	Planter, seed, G. A. Woods Plaster bandages, making, C. G. Hill	
. 209,091		209.067
. 208,895 . 209,092	Plowand harrow. W. G. Himrod	209,046
. 209,017 208,898	Plow clevis, H. Estes Plow, hillside, shovel, and subsoil, E. Tate	
208,956	Plow, sulky, F. H. Isaacs Press, cotton and hay, Tappey & Steel	
209,070 209,009	Printing and painting machine, O. Currier	208,892
. 209,037 . 209,060	Printing. photo-mechanical, M. R. Freeman Propelling vessels, P. Boisset.	205.952
. 8,448 . 208,934	Pulleys to wheels, engaging, Blake & Davis Pump, S. Stucky	
208,994	Pump, double acting lift, Dean & Pike Rafter, F. M. Covert	
. 208,947 . 209,093	Railway rails, muffling, A. Atwood Railway signal, C. E. Hanscom .	208,880
209,066 209,076	Railway signal, electro-magnetic, H. W. Spang	208,995
. 208,923 . 208,971	Railway track, B. F. Card Rake, horse hay, W. Adriance	208,957 209,004
. 209,097	Rolling mills, bearing for, S. W. Baldwin Roofs, attaching slates to, S. Farquhar	208,949
. 208,935 . 208,903	Rope holding reel, C. N. Cass	209,020
209,054 208,997	Rosettes from wood, making, J. H. Burnshow Seal, baggage, E. J. Brooks	208,953
. 8,454 . 208,907	Seal, metallic, E. J. Brooks Seeding machine, S. O. Campbell	
. 208,955	Sewing machine, C. S. Cushman Sewing machine, J. A. Davis	
. 209,033 . 208,941	Sewing machine, L. Evans Sewing machine, book, J. S. Lever	209,030
208,998	Sewing machine, hem stitching, J. A. Lakin	208,911
208,961	Sewing machine tuck marker, G. Rehfuss Shaft and pulley coupling, H. C. Crowell	
208,958 208,984	Shears, metal, W. G. Collins Ships, unloading grain from, W. Stanton (r)	208,888 8,452
. 208,902 (. 208,930	Shoe, J. F. Emerson	208,897
208,991 208,909	Shutter bower, T. Thorn	209,055
	Sign, W. Gulden Sinks, measuring and weighing, D. T. Winter	203,974 208,942
. 208,960	Sleigh, propeller, R. Schluter	209.055
. 209,005 . 208,964	Spittoon, T. Loughran	208,981
. 208,921 ; . 209,002 ;	Spring, car, G. F. Godley Spring, vehicle, E. Chamberlin (r)	8,450
209,006 208,919	Spring, vehicle, C. W. Fillmore Spring, vehicle, H. R. Huie	208,977
. 208,946	Steamer, feed, Machamer & McCulloch Stirrup, saddle, J. M. Freeman	
209,007. 208,894	Stove board, A. C. Stoessiger Stove cover and check damper, H. Ritter	209,085
. 208,982 . 208,881	Stove pipe shelf, L. W. Turner	208,938
208,968 209,094	Stoves, foot bar and rail for. J. Jewett Stoves, hood for cooking, S. Cromer	
. 209,057	Stump puller, W. A. Webb Sugar, manufacture of hard, J. O. Donner	
. 208,928 . 208,9 25	Switch cords, tip for. T. B. Doolittle	208,969
. 208,895 . 208,954	Table folding, R. M. Lambie Tablet, writing, W. O. Davis	208,912 208,966
. 208,939	Target, W. Kuhn Ticket, passenger, A. C. Sheldon	208,910 208,983
. 208,920 . 209,080	Ticket reel, T. D. Haehnlen Toy money box, J. Gerard	208,905
209,095 209,089	Treadle power, I. M. Rhodes	209.079
209,010 208,889	Turbines, steam and other, P. C. Humblot Valve, J. Patterson	208,986
. 208,944	Valve, feed water regulating, E. C. Da Silva Valve gear, steam engine, J. Butcher	208,992
. 208,882 . 209,069	Ventilator, T. Owens Wagon jack, W. B. Bartram	209,072
. 8,453 . 209,058	Wagon jack, Williams & Dodge	208,940
. 208,929	Washing machine, D. Coman	209,035
1 209,021 209,016	Washing machine, F. F. Reynolds	208,990
209,040 208,976	Weighing apparatus, J. H. Wright Window A. K. Phillips	209,099
8, 456 209,059	Window frame, C. Rebhun	208,926
208,896	Wreaths, machine for twining, G. B. Shepard	209,100

100 lb. weight have to fall to run a sewing machine for 5 hours? A. For an ordinary family sewing machine, requiring about one thirtieth of a horse power, the weight would have to fall about 3.300 feet in the 5 hours.

(48) W. G. R. asks: 1. What is the valve yoke of a steam engine? A. We presume you refer to the rectangular yoke that receives the back of the valve in the class of engines having balanced valves. 2.What should be the diameter of the bore of an engine of 1 horse power with 100 lbs. pressure, also the length of stroke? A. Diameter, 234 inches; stroke, 416 inches. 3. How arc the back gears of a lathe made so as to be thrown out of gear when it is wished to use the lathe at a high speed? A. Ordinarily by a cam and lever, or tight and loose joint. 4. Would $\frac{1}{n+1}$ of an inch thickness of sheet steel be strong enough for the boiler of a small modellocomotive? How much pressure would it stand to the inch? A. If the diameter does not exceed 3 inches, you can carry a pressure of from 50 to 60 lbs. per square inch.

(49) J. W. W. asks: Which will stand the most pressure, a piece of round iron 1 inch long and 1

sawaust. by w. H. M.
Keely Motor. By G. R. S.
Firing. By A. P. A.
Steam Launches. By G. F. S.

HINTS TO CORRESPONDENTS.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Many of our correspondents make inquiries which cannot properly be answered in these columns. Such inquiries, if signed by initials only, are liable to be cast into the waste basket.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

English Patents Issued to Americans. From November 8 to November 12, inclusive.

Electric light.-T. A. Edison, Menlo Park, N. J. Feed water apparatus.-S. J. Hayes et al., ----.

TRADE MARKS.

3	Cigars, cigarettes, etc., E. Hilson	6,726
)	Cigars, etc., Engelbrecht Fox & Co6,724,	6,725
7	Disinfecting compound, Hance Bros. & White	6,718
1	Gin, Hoffheimer Brothers	6,729
• :	Lamp chimneys, Norcross, Mellen & Co	6,780
3	Liquid cements, W. H. Sanger	6,731
)	Malt extract, Tarrant & Co	6,722
)	Matches, J. Eaton & Son	6,727
5	Mustard and spices, H. B. Sherman	6,721
5	Perfumery, J. T. Lanman	6.719
3	Playing cards, The N. Y. Consolidated Card Co	6,723
2	Smoking tobacco, H. W. Meyer	6,728
ī	Wash blue, F. Damcke	6,717
-		

DESIGNS.

Carpet, C. Magee	10,870
Cigar boxes, Weller & Repetti	10,871
Font of printing types, J. M. Conner	
Group of statuary, J. Rogers	10,869
Handkerchiefs, J. Grimshaw	

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THE SCIENTIFIC AMERICAN EXPORT EDITION FOR NOVEMBER, 1878, WITH ONE HUNDRED ILLUSTRATIONS.

GENERAL TABLE OF CONTENTS

Of the SCIENTIFIC AMERICAN Export Edition for November, 1875. I.-INVENTIONS, DISCOVERIES AND PATENTS. .-INVENTIONS, DISCOVERIES AND PATENTS. The Incoming Commissioner of Patents. A South Australian Offer for an Improgement. The Forster-Firmin Annalgumator. Three engravings. Lyman's Trigonometer. Oue figure. Patent aw. The Benefits of Patent Rights. Hop Picking by Machinery. Description of Recent Most Important Agricultural Inventions. aventions, Displays of Ingenuity at the Boston Mechanics Fair. Description of Recent Most Important Mechanical ventions. New Wilson Oscillating Sewing Machine. Seven figs. Ď In Inventions. New Wilson Oscillating Sewing Machine. Seven figs. A Nail Gun. Who will Invent a Satisfactory Milking Machine? The Hermetical Sanitary Closet. One engraving. New Ferproof Shutter. One engraving. Inventors Needed in England. New Foot Power. One engraving. New Wool Scouring and Rivsing Machine One eng. New Mool Scouring and Rivsing Machine One eng. New Meosetat Two engravings. The Paris International Patent Congress. Patent Rights, and Who Oppose Them. New Gas Regulator. Three engravings. Combined Traction Engine and Steam Fire Engine. One engraving. Van Renne's Calotic Engine and Pump. Three engs. The Watson Pump. One engraving. Pipe Wrench and Cutter. Two engravings. Drilling Square Holes. Four figures. Description of Recent Most Important Engineering Inventions. New Gashing Machine. One engraving. Drilling Square Holes. Four figures.
Description of Recent Most Important Engineering Inventions.
New Mortising Machine. One engraving.
New Steam Fire Engine. One engraving.
New Bank No e Paper Wanted.
The Proposed Addition to the Patent Office. Two engravings.
A Year's Work in the Patent Office.
New Rule in Trade Mark Cases.
Electric Light in Chancery.
Novel Egg Opener. Two engravings.
Patents for Protecting the Dead.
Electric Light Patents.
A New Platen Gauge. Four engravings.
Gas and Water-tight Cloth.
New Regulator for Clock Pendulums. Two engs.
Steam Engine Governor. One engraving.
Description of Recent Most Important Miscellaneous Inventions.
Patent Office Library.
I.--MECHANICS AND ENGINEERING. TI-MECHANICS AND ENGINEERING. Chard's Lubricene and Cups. The Electric Light and the Gas Companies. Fuel Gas. New Ways to Use Iron Wanted. Progress and Prospects of the East River Bridge. Two engravings. A Steam Tricycle. New Artetian Well, Victoria, Spain. Fuel Gas. New Artenan wen, victoria, span. A Long Train. How a Good House Should be Built. Jetties Under Water. How the Capitol at Albany, N. Y., is to be Warmed and Ventilated. nd Ventilated. What a Perfect Railway Brake Should do. The Secret of It. Florida Ship Canal. The Torpedo Vessel Destroyer. One illustration. Steam from Petroleum. The Motion of a Wagon Wheel. Building in Steel. Locomotive for the Metropolitan Elevated Railway. be illustration

Crude Sulphur from Iron Pyrites. Antimony for Batteries. Delicate Test for Water. The Polarization of Electrodes. Fragarine. Balata Gum. Astronomical Notes. Giving the Positions, Rising. and Setting of the Planets for November. Professor Morton on the Electric Light. The Electrical Department in the Mechanic's Fair, Soston. Bo Boston. The Satellites of Mars. Gold Amalgams. Another New Electric Light. Albumen of the Serum and that of Egg, and their Combinations. A blanch of the bertain and that of Egg, and then ombinations. A Mirror Telegraph. Some Modifications of the Microphone and Tele-phone. Four engravings A Chance for Electric Competition. Advantages of Experimental Study. The Black Spot o : Jupiter. The Electric Light With five engravings. Spontaneous Combustion. Recent Military Balloon Experiments. Burner for Electric Light. One engraving. Artificial Ball Lightning. One engraving. To Make Corks Air-tight and Water-tight. Electric Time Service for New York. Four engrav-nege. ings. The Hosmer Motor. Polarized Light. Phosphorescent Timepieces. The De Meritens Magneto-electric Machine. Two fig Cellulose as a Material for Washers V.-NATURAL HISTORY, NATURE, MAN, ETC. The Golden Cup Oak. Serpulas, or Sea Worms, One engraving. The King Tody Bird. One engraving. Life Without Air. Cadaver-poison of the Australian Natives. The Contortion of Rocks from Heat Mechanically locastad Generated. C The Stiffening of Plant Stalks. The Stiffening of Plant Stalks. Immense Labor Performed by Bees, The Torrey Botanical Club. The Big Trees of California. Explorations in Greenland. The Umbrella Bird. One engraving, The Areas Toro The Umbrella Bird. One engraving. The Argan Tree. A Spruce-destroying Beetle. A Geological Discovery in Deep Water. The Mound Builder's Unit of Measure. Progr-ss-of. Horticulture. Bishop Ferrette on the Cedars of Lebauon. Special Senses in Insects. New Cave Discovery in Kentucky. Longevity of the Horse. Left-handedness. Bee Culture in Egypt. The Poison Ivy and Virginia Creeper. Two engrav-ness. ings. The Crafty Hermit Crab. One illustration. VI.-MEDICINE AND HYGIENE. VI.—MEDICINE AND HYGIENE.
Nitrate of Amyl in Sea Sickness.
Milk cure for Lead Colic.
Milkweed Juice for Raw Surfaces.
The Use of Snails in Medicine.
The Deleterious User of Alum in Bread and Baking
Powders.—Alum being Substituted for Cream of Tartar.
The Treatment of Hydrophobia.
New Use for Warta.
Removal of the Entire Scalp by Machinery.
The Probable Starting Point of the Yellow Fever.
Fieda. The Probable Starting Foint of the Piedra. Heredity. Scientific Reliance on Soap. The Medical Ice Hat. Ventilation of Bed Rooms. The Filtration of Drinking Water. The Texas "Screw Worm." VII.—THE PARIS EXHIBITION, SCIENTIFIC MEETINGS, ETC. Success of American Exhibitors at Paris. The Main Building at the Ex ibition. With one full The Main Building at the Ex ibition. With one full page illustration, The French Industrial Exhibition of 1878. Awards and Honors at Paris. Ingram Hotary Press, One illustration. A Grand World's Fair in New York. A Mexican Exhibition. Australia to have a World's Fair. Closing of the French Exhibition. Hydraulic Motors at the Exhibition. With two en-UTAVING The National Academy of Sciences. The Official Reports of the Paris Exhibition. American Society of Civil Engineers. VIII.—INDUSTRY AND COMMERCE. Should the Nation Engage in Manufactures? American Export of Agricultural Machinery. Corundum American Made Goods Exhibited as European Manu-An Odd Craft. Progress of our Foreign Trade. The Condition of Manufacturing Interests in Ger-

many. Labor in Chicago. Addition to Carbon Adulterated Graham Flour. Addition to our List of Food Fishes. Preservation of Milk. Electrical Test for Oils. Parsnips. Russian Pottery. Two engravings. Notes from the South.—Facts about the Cotton Notes from the South.-Facts about the Cot Worm. The Mediterranean Trade. American Competition in Great Britain. Rapid Increase in French Woolen Industries. The Rockport Granite Quarties. Trade Mark Treaty with Brazil. Early Manufacture of Steel Pens. New and Stale Bread. Leather from Sheep Stomachs. New Source of Rubber. A National Law Governing Adulteration Needed. How to get P re Teas. Skilled Labor in New York City. French Subsoil and Clearing Plow. One figure.

Future Rifle Shooting. "Bruce," the Manchester Fire Horse. The Trial of the "Pyx." Early Gold Payments. Workingmen in England and France. Washington Memorials in Northamptonshire. Three engravings. Cultary Uses of Leaves. A Remarkable Bank Robbery.—Scientific Safeguards Neglected. Cleopatra's Needle. A Steam Juryman. Roadsin Haden. Indications of Progress. Practical Education in Russia. Table Forks. The Cost of Insecurity. Improved Copying Pencils. Answers to Correspondents, embodying a large quan-

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Defined Disboil and Clearing Plow. One figure, Opening for Trade in Madagasear, Handling Grain in Buffalo. The Blue Process of Copying Tracings. We Buy of them that Advertisc. Unproductable Agents. Various Uses of Paper. Improved Grinding Mill and Crusher. Two engrav-nes. Improved Grinding Mill and Crusher. Two engrav-ings, The Cultivation of the Common Nettle, The Economic Products of Seaweed. The Japanese Wax Tree in California. Preservation of Food by Gelatin. Pearl Millet. To Turn Oak Black. Dairy and Poultry Produce in America. Australian Gum Trees. Frauds in Wine Making. Removal of Iron Coloring from Liquors. The Utilization of Iron Slag. Relative Cost of Coal Transportation by Water and by Rail. by Rail. How to get Rid of Anta. The Science of Milling. IX.-PRACTICAL RECIPES AND MISCELLA-NEOUS. Progress in England and America, An Improvement on Tea Chromos. A Correction. The Stability of Modern Civilization.

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